

AUTOMOTIVE INDUSTRIES

AUTOMOBILE

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Contents

Distributor Maps Recut to Fit "New-Old" Conditions. By Norman G. Shidle	515
Just Among Ourselves	517
Olympic Models Priced at \$1,385 and Up Places Franklin in New Price Class	518
Sixteen-Cylinder Line to be Exclusive Production of the Marmon Plant	520
Rear-Engined Bremac Will Make Initial Bow at New York Show	521
Dealers Claim Factory Options Cut Their Profits. By Joseph Geschelin	522
Mathis "Four" Shown at Paris Show With Independent Wheel Suspension	525
Device Developed by Spicer Makes Gear Shifting Easy on Multi-Speed Transmission ..	526
Factory Problems and Public Tastes Demand Gradual Changes in Design—Says Henry M. Crane	529
Weight and Cost of Steel Dies Reduced by Use of Gas Cutting and Welding. By Everett Chapman	530
Bendix-Westinghouse Develops	533
Automotive Oddities	534
News of the Industry	535
Calendar of Coming Events	542
Advertisers' Index	40

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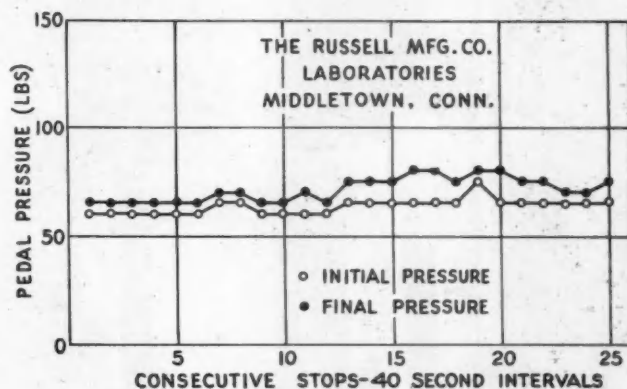
Automotive Industries

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This Rusco Lining withstood 25 consecutive 60 m.p.h. stops without failure.

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Data: Car weight, 3800 lbs.; speed, 60 m.p.h.; brake, 12 in. mechanical; drum material, cast iron; constant deceleration, 15 ft. sec.²

The accompanying chart represents the third test, which was so severe that before it was completed the brake drums attained a temperature of over 700° F. In spite of this, no appreciable fade-out was registered, and an examination of drums and linings showed both to be in excellent condition.

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October 22, 1932



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October 22, 1932

Automotive Industries

Distributor Maps Recut to Fit "New-Old" Conditions

Low volume levels may mean some movement back toward larger territories for car wholesalers. Trends mixed

by
Norman
G. Shidle



A LITTLE over a month ago, appointment in New York by Hupmobile of five distributors where a single large distributor previously had served, turned thought once again to the future trend of passenger car distribution methods. Commenting in our August 27 issue we said:

"Only a few companies are left, and those chiefly in the high-priced field, which adhere strenuously to the old fashioned type of distributor set-up. Perhaps all will be gone within the next decade—but perhaps not.

have to be back toward larger territories—or factory branches. We have yet to find a factory which really likes to open branches."

Since that time we have done a bit of quiet investigating. The result of that investigating is a belief that, if total car sales next year increase only fifty per cent, and that if they increase only fifty per cent again in 1934, it is quite possible that distributor territories may begin to get larger again.

There is little left today of the vast array of big-territory, big-profit distributors who were once the

Good Old Days of Easy Profit For Distributorships Are Gone

Never again will there be an easy profit period for distributors, regardless of the size of their territories.

The old timer who hopes for a return of those happy days when he could sit back and dispense automobiles to clamoring dealers and collect 5 per cent for so doing is dreaming a vain dream.

Hard work, sound methods and constant vigilance will be necessary to wholesale and retail profit in the automobile field from now on no matter what sort of factory policies are adopted.

backbone of automobile distribution in the United States. Ten years ago requiems were beginning to be sung at the funeral of large-territory distribution. First the lowest-priced cars went to direct dealerships, then the cars in the next price bracket, and then, several years ago, even the middle-priced group began moving toward small territories for distributors. The distributor today in many cases has a territory about equal to that of a fair-sized dealer in the old days.

But the current depression has seen that tide checked in some instances, even though its sweep has continued forward in others.

True, a change brought about by necessity may easily be confused with a change of "policy." A manufacturer may have cut down the number and increased the average territory size of distributors in the last year or two because some of his outlets went bankrupt and he couldn't find new people and new capital to replace them. Whatever the motive the accomplished fact remains the same—for the time being at least. Only when business gets really good again will it become apparent whether or not such moves were really "policy" moves or whether they were merely temporary expedients, to be dispensed with at the earliest opportunity.

The fact remains, nevertheless, that there is, for the first time in many years, at least a slight tendency back toward larger distributor operations in the thinking of more than one important operation.

Sales totals, of course, are a most important factor. Sales for a whole price class in a given territory during 1932 have frequently been less than were sales of a single make back in boom times. That means that (1) either the individual dealer or distributor must have more territory in order to carry his overhead or (2) his overhead must be shrunk sufficiently to operate profitably on the new low sales totals. In many instances the latter course has been impossible. It may seem more sensible in many instances to extend the territory of one good distributor to a profitable size than to try to force distribution through several outlets on a basis unprofitable to each of them.

This line of argument doesn't hold water, of course, for all lines of cars, for all territories and all

distributing areas. That is obvious. The relationship between territory size and volume of sales is brought out here, however, because that relationship does have a bearing on the matter of distribution policy.

In view of that fact, the probable size of the 1933 and 1934 passenger car markets will undoubtedly have some effect on determining whether this slight turn back toward larger distributing areas grows or fails to gain strength. Nobody can predict future volume with any accuracy, that's certain. Here are a few interesting figures, though, which may well give food for thought:

New car sales in 1929 totaled just over 4,000,000.

In 1930 they were 2,670,000.

In 1931 they were 1,920,000.

In 1932 they will be about 1,100,000.

Now then let's make a few calculations about the future:

If 1933 car sales are 50 per cent ahead of 1932, they will total 1,650,000.

If 1934 sales are 50 per cent ahead of 1933, on that basis, they would total about 2,475,000.

Maybe business will take a big spurt next year. Perhaps we will sell twice as many cars as we are selling in 1932. In that case, the 1933 total would be 2,200,000. And if we added another 50 per cent gain on top of that in 1934 the total in that year would be 3,300,000—a figure just about equal to 1928 sales.

These figures are not meant as predictions. They are presented simply to indicate something about the possibilities of volume in the next twenty-four months. Some studious executives, looking at them, incline to the belief that they point toward a turn to larger rather than smaller distributors. They base this thought on the fact that the reduction in distributors' territories and the elimination of the distributor set-up entirely have always come in the past with an increase in volume on the part of the individual manufacturer. The indicated continuance of relatively small volume, they think, will mean the reverse.

Increased difficulty in getting a sufficient number of distributors with adequate capital also has a
(Turn to page 543, please)

JUST AMONG OURSELVES

Smaller Cars are Heavier

HENRY M. CRANE said a great number of pertinent things when he talked to the S.A.E. Philadelphia Section last week, but his statements about the economy possibilities inherent in the much talked of smaller car interested us most of all.

We've heard a lot about utility and economy light cars since the depression got under way. Now Mr. Crane tells us that even if the car size be decreased considerably, it isn't possible to get anything like a proportionate weight reduction—that is if you are going to end up with an automobile capable of meeting the wide range of varying conditions and performance requirements to which the modern American car is subjected.

Lighter Metals are Prohibitive

Even if the car is smaller, he pointed out, the thickness of metal in various parts can't be decreased much. Engine wall thicknesses are limited by foundry practice rather than engineering design, for example. The only way to make a car really lighter, he says, is to use lighter metals, all of which are

very expensive and certainly not adaptable in any "economy" car.

On the Importance of Looking Backwards

HAVING been laved for years by the exhortations of those who urge us to look ever forward and glance not back lest our thinking become even as did the body of Lot's wife, there was something refreshing about Henry M. Crane's long evident but recently expressed belief in the importance of looking backward.

Granting the necessity of continued forward movement, Mr. Crane took pains to point out that there is more than one way of rowing a boat. The gondolier school of rowing, he recalled, requires the boatman always to be facing forward and thus permits him always to see just where he is going. The rowboat oarsman, on the other hand, facing the rear as he rows, is enabled to steer an equally straight course by the simple device of keeping the stern of the boat in line with some fixed object, turning about for a forward look only occasionally in order to check and double check.

Many of the most astounding discoveries made today, he pointed out, already had been discovered a good many years

ago. The failure of a particular device or idea at some time in the past, moreover, should never be considered a sound argument *per se* for keeping that idea or device forever in the discard. Many devices have failed in the past because of conditions which no longer exist.

The future, we understood Mr. Crane to mean, can be made better, quicker by consultation with the past.

More and Better Air

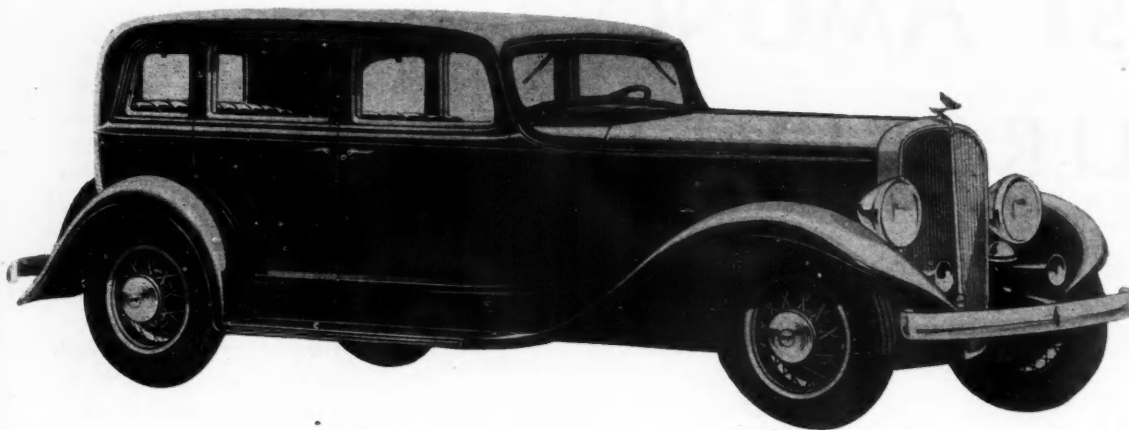
SOMETHING better in the way of car ventilation, incidentally, was predicted by Mr. Crane for the very near future. Ventilation in the modern car, he said, still is just as good as in the days of the Model T Ford.

He doesn't think we'll have anything like air-conditioned or refrigerated passenger car bodies, at least for a long while to come, because of the size and weight of the equipment necessary to achieve results. But he did say rather definitely that something better than what we have now would be along soon. That makes something else to look for especially on the 1933 models.

Guess we'd better stop talking about Mr. Crane's speech, however, or we'll be repeating everything that is in the interesting report of his whole talk which appears on page 529 of this very same issue. It's hard for us to refrain, however, because we thought he made a grand talk. He made enough specific comments on specific design constructions to have generated discussion for several hours had he not been forced to run for a train before that was possible.—N.G.S.

Flowing lines feature the bodies of the new Franklin offering

Olympic



WITH the announcement of its new Olympic model, the H. H. Franklin Manufacturing Co., Syracuse, N. Y., enters an entirely new price class. While prices have not yet been definitely set, it is announced that they will range from \$1,385 and upward. The car has a wheelbase of 118 in. (as compared with 125 and 131-in. wheelbase in last year's Franklins) and a tread of 60 in. at both front and rear. The weight of the sedan model is 3500 lb., which is over 800 lb. less than that of the Series 16 Franklin sedan.

The engine of this new model is the same as that used in the Franklin Series 16. It is a six-cylinder air-cooled design of 3½-in. bore and 4¾-in. stroke (274 cu. in. displacement). The compression ratio is 5.12 to 1 and the engine is rated to develop 100 hp. at 3100 r.p.m. At the front the powerplant is rigidly mounted on the frame, while at the rear it is carried on rubber supports.

Pistons are of the Lynite aluminum-alloy type, with invar struts, and they carry three compression rings and one oil-control ring. The piston pin is locked in the upper end of the duralumin connecting rod. The crankshaft is supported in seven main bearings; it is provided with 12 counterweights and is statically and dynamically balanced. A fabric disk in the flywheel serves the function of a torsional vibration damper.

The crankcase is cast of aluminum alloy and carries the six individually-cast cylinders upon it. The cylinders are cast of nickel iron and are provided with integral cooling fins. Valve seats of Ni-resist iron are inserted in the aluminum cylinder heads. Exhaust valves are made of Resistol steel and inlet valves of chrome-vanadium steel. All valve stems are automatically lubricated. The camshaft is driven through a Whitney silent chain which also drives the generator.

Fuel is fed from a 20-gal. tank at the rear by an AC pump to the Stromberg carburetor which is provided with a spring-loaded choke. To obviate trouble from vapor lock, the fuel line is carried outside the frame side rail. A gasoline strainer is combined with the AC pump.

Ignition is by the Delco-Remy battery system, with automatic spark advance and hand auxiliary control.

Wheelbase 118 in.
Engine 6 Cyl., Air Cooled
Horsepower 100 at 3100 r.p.m.
Bore . . 3½ in. Stroke . . 4¾ in.
Displacement 274 cu. in.
Compression ratio . . . 5.12 to 1
Rear Axle Semi-Floating
Brakes Hydraulic
Non-Shatterable Glass

Cooling is by the blower system. An air turbine, direct-connected to the crankshaft at the forward end, delivers air to an air duct which discharges it against the engine cylinders from the side, the air passing over the horizontal fins from left to right. In the air duct the air naturally is under more than atmospheric pressure, and since the carburetor inlet is connected to this duct, a supercharging effect is obtained. The front of the engine space is closed by a set of shutters which are controlled by means of a thermostat.

Lubrication is by the usual pressure system. Drill holes in the crankpins and the connecting rod heads give an intermittent spray to the cylinder walls in addition to the steady spray from the revolving parts.

Generator and starting motor are of Delco-Remy manufacture, the starter being provided with a Bendix drive. A Willard battery of 102 amp.-hr. capacity is standard equipment. The electrical equipment also includes "Startix," guide headlights of 11¼ in. diameter, Tiltray lenses, double-filament (twin-beam) bulbs, auxiliary parking bulbs, and a stop and tail light of 4¾ in. diameter. A dimmer switch is mounted on the steering wheel.

A Long three-plate clutch with spring-type vibration damper is fitted. The transmission is of the three-

Models Priced at \$1,385 and Up Places Franklin in New Price Class

speed type, with silent second gear and synchronized shift. A roller-type free-wheeling unit mounted to the rear of the transmission is standard equipment. The propeller shaft is tubular and incorporates two Spicer metallic universal joints.

The rear axle is of the spiral bevel gear-driven, semi-floating type, the pinion shaft being straddle-mounted on two Standard ball bearings. The gear ratio is 4.3 to 1. All bearings in the axle other than those on the pinion shaft are of Timken make. Wheel brakes are of the Lockheed hydraulic type, with molded lining, and act on the inside of 12-in. centrifuse drums. A hand-operated brake acts on a 7-in. drum on the transmission tail shaft.

The front axle is of the I-section drop-forged type, with reverse Elliott steering heads and roller bearing mountings on the knuckle pins. A Ross cam-and-lever steering gear is fitted, with roller bearings on the stud and a three-spoke, steel-center, rubber-covered steering wheel of 18 in. diameter. The turning radius is 19½ ft. to the right, 21½ ft. to the left.

The frame is of the double-drop type with X-shaped center bracing and front and rear cross-members. Side rails have a 6 x 3 x 5/32-in. section. All springs are

semi-elliptic and of silico-manganese steel. Front springs measure 39 x 2 in.; rear springs, 55 x 2 in. Tryon self-adjusting spring shackles are used.

Wheel equipment consists of five wire wheels with drop-center rims, the spare wheel being carried at the rear. Alternate equipment is six wire wheels with spares in fender wells, this equipment going together with a rear trunk rack. Tires are 6.00/17 in. The road clearance is given as 8¼ in.

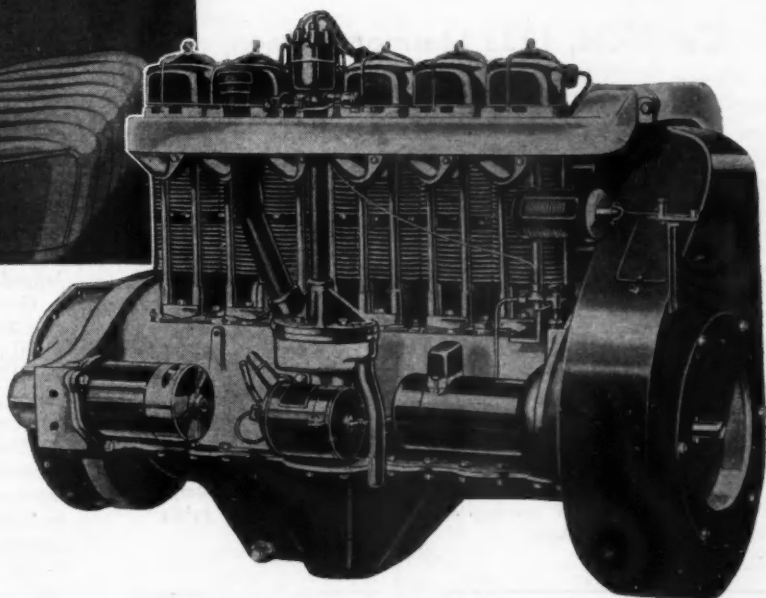
The body, which is built by Hayes, is of composite wood and steel construction. Both front and rear corners are well rounded. Body features include the following: Windshield comprising a permanently fixed chromium-plated frame and a non-shatterable glass; double-size ventilator in cowl; narrow, clear vision front pillars; universally adjustable sunshade in sedan and coupe; adjustable front seat; robe rail and foot rest in sedan; curtains on rear and back quarter windows; smoking sets in sedan; catch-all pocket in cowl; glove pockets in rear doors; remote-control door handles; inside door locks with anti-lockout provision; common key for right front door and ignition switch; rubber or fiber insulation in all body joints; heavy felt mats under floor covering; sound-proof roof; dash covered by fiberboard and fabric; body paneling treated with sound deadener.

The instrument panel has an engine-stripped finish and is indirectly lighted. It carries a Stewart-Warner 100-mile speedometer, a King-Seeley gasoline gage, a free-wheeling control, a cigar lighter, an oil-pressure gage, ammeter and super-charge control. Both pedals and the treadle-type accelerator are rubber-cov-

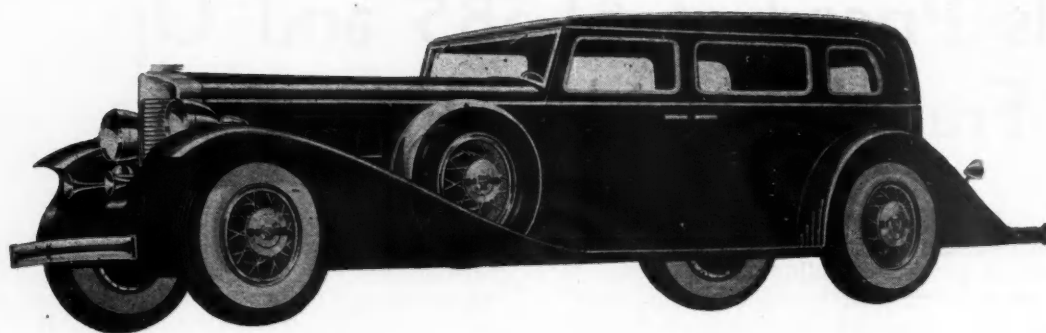
(Turn to page 544, please)



Interior of the new Franklin Olympic Sedan is attractive and restful. Seating accommodations are a special point in comfort



View of supercharged, air-cooled 100-horsepower engine employed in the new Franklin Olympic



Among the new features are a two-tone paint combination, new molding strips, and new wheel treatment

Sixteen-Cylinder Line to be Exclusive Production of the Marmon Plant

Eight custom body styles at savings of \$875 or more from last year's offering comprise the new list

ACCORDING to an announcement of the Marmon Motor Car Company, that company hereafter will confine itself to the production of the Marmon Sixteen in a revised edition. The car is now in production and will be exhibited to the public at special salon exhibits in the principal cities this month and next. Substantial reductions, ranging as high as \$925, have been made in the

list prices. Eight custom body styles are being offered, the lowest-priced listing at \$4,825 f.o.b. factory.

There are no basic changes in the new Sixteen, but improvements have been made in the appearance of the car and in the interior features of comfort and luxury. Among the new external features are a new two-tone paint combination, new molding strips, and a new wheel treatment; streamline lamps mounted on the front fenders, horns mounted beneath the headlamps, and chromium-finished rear-fender moldings. The interior effects have been enriched by new paneling of the doors and a tailored interior finish; a better treatment of the leather seaming cord which defines the seat and cushion contours, and deeper, softer cushions.

The interior is given a new note also by the adoption of an opalescent finish for the instrument board, which relieves it sharply from the background on which it is mounted.

Among the principal mechanical changes are the addition of selective ride control and the adoption of a composite type of brake drum with steel supporting member. The ride control is operated by a small lever located convenient to the driver, immediately below the instrument board.

Certain changes have been made in the construction of the frame design of the LeBaron custom-built bodies, including the use of massive steel members which add to the rigidity of the door mounts and eliminate squeaks due to flexing in body frame joints.

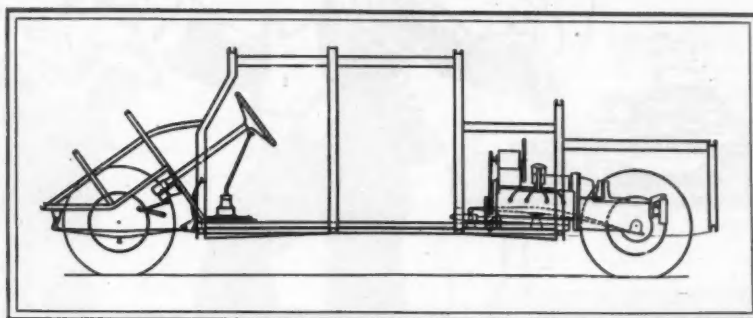
The 1933 Marmon Sixteen line includes eight body styles on the 145-in. wheelbase. These body styles are the five-passenger sedan, two-passenger coupe, five-passenger two-door coupe, two-passenger convertible coupe, five-passenger convertible sedan, seven-passenger sedan, seven-passenger limousine and five-passenger close-coupled sedan. All bodies are custom-built by LeBaron. A wide variety of paint, trim and upholstery combinations are offered.

List Prices, 1933 Marmon Sixteen

Body Style	New F.O.B. Price Not Including Tax	Old F.O.B. Price	Reduction
Five-Passenger Sedan	\$4,825	\$5,700	\$875
Two-Passenger Coupe	4,825	5,700	875
Five-Passenger Two-Door Coupe	4,925	5,800	875
Two-Passenger Convertible Coupe	4,975	5,850	875
Five-Passenger Convertible Sedan	5,075	5,950	875
Seven-Passenger Sedan	4,975	5,900	925
Seven-Passenger Limousine ..	5,175	6,100	925
Five-Passenger Close-Coupled Sedan	4,925	5,800	875
Chassis	3,750	4,375	625

Above prices for cars with complete standard equipment including all accessories, with two spare tires, tubes and metal tire covers.

Rear-Engined Bremac Will Make Initial Bow at New York Show



On the new "Bremac" there will be no chassis frame, no propeller shaft or universal joint

ANNOUNCEMENT of formation of the Bremac Motor Car Corp. and approval of its stock issue by the Michigan Securities Commission brings the American public one step closer to radically new designs in automobiles. "Bremac" has been coined from the first syllable of the names of Procter Brevard, who conceived the automobile, and William R. McCulla of Detroit.

Mr. Brevard's history includes the positions of sales engineer of Zenith-Detroit Corp., and assistant to Col. J. G. Vincent, at the time the latter was chief engineer of the Hudson Motor Car Co. Mr. Brevard is vice-president and secretary of the new company; Mr. McCulla is treasurer, and Fred D. Clark of Sydney, Ohio, is president. The board of directors of the Bremac Motor Car Corp. include in addition Amos Northup, chief designer, Murray Corp.; Tom Van Etten of Sydney, Ohio, and Carl Wisner of Detroit.

Offices of the new company for the time being are located at 605 Stephenson Building, Detroit, while the factory is located in a former custom body plant in Sydney.

The car is not intended as a high production automobile but will be strictly custom built, with Teardrop bodies designed by Amos Northup. The closest approach structurally to the new automobile, the first of which is now under construction at Sydney, is an airplane monocoque fuselage, to which have been flexibly attached at the front end a front axle and steering unit, and at the rear a powerplant, transmission, clutch and axle unit.

According to Mr. Brevard, he first conceived of a three-unit automobile about three years ago in Minneapolis. Unable to get across to body designers in that district the conception of a truly streamlined car, he says, he came to Detroit where he met Mr. McCulla and also Amos Northup of the Murray Corp.

Mr. Northup took the body design in hand and has evolved, it is claimed, a new form of streamlining. Redesigning of the mechanical structure was necessary to coincide with body requirements, thereafter, but the general mechanical conception of the automobile, Mr. Brevard says, has remained unchanged.

Briefly this consists of a series of duraluminum "hoops" forming the body, faired with wood and covered with a metal skin. To the framework there is attached at the front, through semi-elliptic springs a conventional front axle and Ross steering gear. Similarly attached to the framework at the rear, through full cantilever springs, shackled at the front, trunnioned at the center, and rigidly clamped to the rear axle housing at the rear, is the power unit. There is no chassis frame, and no propeller shafts or universal joints.

This power unit is not unlike a tractor installation in general conception. Engine clutch and transmission are in one unit, and transmission, clutch and rear axle housing are also in one unit, in the same cast case. Except for the case at the rear, standard mechanical parts are used throughout. The axle is a top-mounted Timken worm drive, the transmission a three-speed synchronized shift Warner gear, a rubber-cushioned hub Borg & Beck clutch is used, while the engine is an 80-hp. eight, built according to designs which Mr. Brevard has developed through the past five years.

Brakes are four-wheel hydraulics. Disk wheels with 7.50/15 in. super-balloon tires will probably be used. The complete car in sedan form is estimated to weigh approximately 2600 lb. for a power weight ratio of 33 lb. per hp. This ratio should secure to this car, with 146-in. wheelbase and 18-ft. overall length, rather remarkable acceleration, while the streamlining is claimed to provide a top speed expected to be well over 100 m.p.h.

Seating in the five-passenger sedan is the reverse of customary arrangement, in that the front seat is for three, and the rear for two. This is in line with true streamlining requiring a fairly blunt nose and gradual tapering toward the rear. It should be noted from the drawing, moreover, that passengers are located midway between the axles, at approximately the center of oscillation—for greatest riding comfort.

In line with streamlining for fore and aft conditions, front axle tread is 60, while thread at the rear is approximately 54 in.

(Turn to page 528, please)



Dealers Claim Factory Options Cut

by Joseph Geschelin

OPTIONS on all the colors of the rainbow, any kind of wheels, any kind of body, ad infinitum, actually hinder sales and hurt the old pocketbook, although once hailed as the boon. So say certain automobile retailers.

Economists have a name for it. They call it the law of diminishing returns. In other words—there is a limit to everything.

Consider an example. A 500-car dealer chooses only 500 option combinations during the entire year, and perhaps at no one time has more than 25 cars available for immediate delivery.

If he were to satisfy the demand for any wanted combination, obviously the salesroom would have to be a skyscraper, his investment would run to millions, while his net return would be infinitesimal.

Some years back when things were booming and competition keen, it looked as if a lot of options would help the sale of low-priced cars; would help squeeze out that "last" sale. Someone started it, others followed suit. The number of combinations have increased like a snowball rolling down hill. Until the old law of "D. R." stepped in.

Now the dealers say that options cut their profits, lose sales, create headaches. And, if sound dealerships are the bulwark of the factory, profits are the bulwark of sound dealerships. They insist that something should be done about it. What is the answer?

In the first place, how serious is the situation? Just a glance at the data in Table 1 is sufficient. Here in a tabulation of the chief options for a group of representative cars we find that the possible combinations range from several hundred to the thousands. Nor is

this all. The totals shown here are only approximate and usually give the lowest value, in most cases the number of combinations may be much greater due to miscellaneous options such as safety glass, special colored fenders, etc.

Obviously the individual retailer carries a limited stock of cars and the smaller the dealer the less the number of cars he can afford to have on hand. Even the small available stock is dictated chiefly by the probable demand in body styles. Consequently, his range in color, wheels and trim, is narrow indeed and represents just a small bite of the combinations open to the whims of a buyer.

In a typical case let us assume that Mr. Zilch has decided to buy a certain make of car within the reach of his pocketbook. If he has read the advertising of the particular maker he enters the showroom thoroughly imbued with the knowledge that he can get just about anything he wants in the way of colors, gadgets, etc. Quite often he sets his mind on something the dealer hasn't got and immediately the thing becomes very important. In fact, "he wouldn't want a car that wasn't just that color—and canary-colored wheels."

Occasionally the dealer can talk his prospect out of it. But suppose the buyer insists. Then Mr. Dealer asks Mr. Zilch to come back tomorrow. In the meantime there comes the business of scurrying around and foaming at the mouth trying to find a suitable combination in the stock of local dealers. In some communities a dealer's exchange organization acts as a clearing house in matters of this kind.

Now it is conceivable and it does happen that this frantic chase fails to turn up the wanted combination.

The buyer is asked to wait for a factory shipment and that means a delay of a week or two weeks or more, taking into account delays in the factory and in transit.

For instance, according to a recent check-up we find that the delay at the factory in filling special orders runs about as follows: Plymouth five days; Dodge 10 days to two weeks; Hupmobile two weeks; Nash three to five days. Add this to delay in transit and the wait becomes irksome indeed.

Where the buyer is sufficiently exercised over his choice of special options, he is unwilling to wait for a new shipment and buys somewhere else, sometimes right off the floor in a rival dealer's establishment. Now the point is that the dealer is "out" no matter what happens. If the buyer gets his car from a rival dealer, both the dealer and his factory are out. But, if the buyer is willing to wait for a special job the dealer still is left with an extra car on his hands, granting that he makes a profit on the special.

From the dealer's point of view, therefore, although options may mean the turnover of special jobs ordered in a hurry from the factory, they neither move the

stock on hand nor help boost profits. Which brings us to another angle of the situation, namely, that the retailer may normally expect to be left with cars on his hands that are outmoded to some extent because of the usual run of seasonal changes, which means another slice off profits.

This situation seems to apply chiefly to lower-priced cars. It probably does not affect the higher-priced cars to so great an extent because it is more often customary to get these cars to order.

Granting that the wide-awake sales manager is conscious of the exact state of affairs, it is possible for him to be lulled into a state of false security by the apparent ease and precision with which the modern factory organizations handle an almost limitless variety of specifications over the assembly lines each day.

The writer can well appreciate the situation because he has had the privilege of studying the mechanism of planning and scheduling for the assembly lines in many outstanding plants including Studebaker, Oakland and Plymouth. Intimate details of these were published exclusively in *Automotive Industries* during the latter part of 1930.

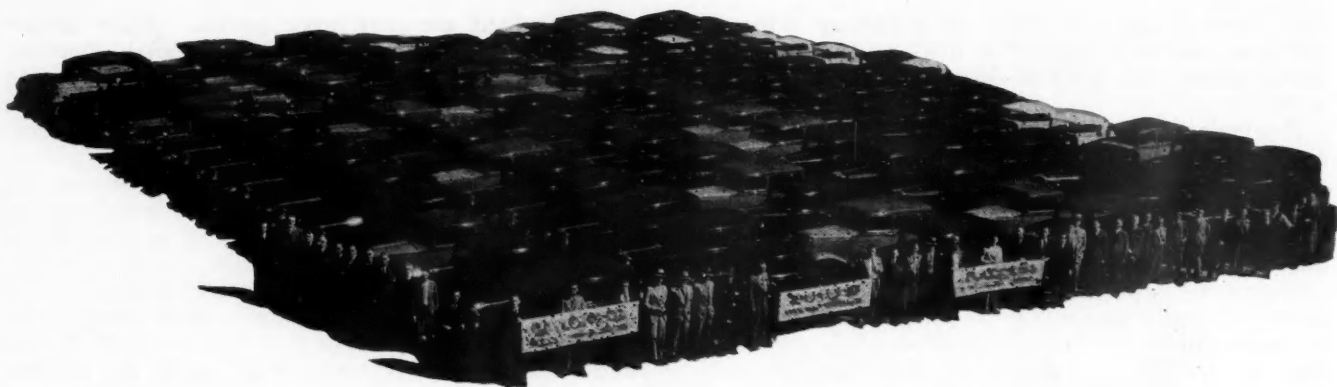
But in the final analysis, factory schedules are based on definite shipping schedules only, and only that portion of a shipment to a dealer is immediately convertible to a sale that has been made up against a definite order. Ordinarily, the dealer must take his

Their Profits

Table I

MAKE	MODEL	BODY TYPES	COLOR OPTIONS	WHEEL OPTIONS	TRIM OPTIONS	MISCELLANEOUS	POSSIBLE* COMBINATIONS Sub Total	Total
Auburn	12-100 S	6	3 and 2	6	2	Fender Wells	210	1,058
	12-160 C	6	5 and 3	6	2	Fender Wells	378	
	8-100 S	7	2	4	2	Fender Wells	140	
	8-100 C	7	5 and 3	4	2	Fender Wells	330	
Buick		26	26	10	3 and 5	Glass, Radio, Fenders		20,000
Chevrolet		14	1 and 4	1 and 2	1 and 2			252
Chrysler	6	9	36 and 10	4			1490	3,602
	8	7	36	4			1260	
	Imp. 8 S	5	36	4			720	
	Imp. 8 C	6	18 and 4	2			132	
Dodge	6	4	3	4	3		144	384
	8	5	4	4	3		240	
Ford	V-8	14	8	1	3		378	756
	4	14	8	1	3		378	
Graham	6-113	4	6	6	3		432	3,924
	6-118	2	6	8	3	Glass	432	
	8 S	3	15	8	3	Glass	1440	
	8 C	4	15	8	3	Glass	1620	
Hupmobile	6-216	5	10	7	2	Glass, Fender Color	1400	3,640
	8-222	4	10	7	2		1120	
	8-226	4	10	7	2		1120	
Marmon	8-125	6	8	6			288	2,388
	16	8	11	6	5 and 3		2100	
Nash	6-116	6	20	12	3	2 Optional	8640	36,000
	8-121	6	20	12	3	2 Optional	8640	
	8-128	6	20	12	3	2 Optional	8640	
	8-133	5	20	12	3	2 Optional	7200	
	8-142	4	20	12	3	2 Optional	2880	
Oldsmobile	6	6	10 and 4	6	2	3 Optional	1944	3,888
	8	6	10 and 4	6	2	3 Optional	1944	
Reo	"S"	2	5	3			30	142
	Royale S	3	4	3		2 Optional	72	
	Royale C	3	4	2			40	
Studebaker	President	11	6, 6, 6			2 Optional	132	1,092
	Commander	8	6, 6, 6	1 and 3		2 Optional	240	
	Dictator	12	6, 6, 6	1 and 3		2 Optional	360	
	Six	12	6, 6, 6	1 and 3		2 Optional	360	

*Approximate only—usually minimum figure.



quota according to the body styles and options that, in his opinion, will pull in his territory.

Coming back again to the factory problem, it is interesting to note that the absence of options or at least a reduction in their number simplifies both the labor of planning and the organization required to carry it through. In large production, a simplification of schedules results in greater flexibility, better deliveries and a much smaller lag between the receipt of the order and its execution.

This is perhaps strikingly exemplified by the flexibility of the Plymouth production lines. Only one man is needed to handle the scheduling of the lines and a fresh schedule can be written every hour on the hour. This means the sales department is free to put through special shipments any time during the course of a single day. The secret of the system at the time we observed it lay in the small number of body models and the absence of color options on the biggest sellers.

It seems only reasonable that the low-priced, large volume car could benefit by sticking to a minimum of body types, no option on wheels, or at the best perhaps one additional option, and some standard color which could be changed monthly. The necessary diversity in the line could be effected by having a different color for each type of body. Moreover, wouldn't it be equitable to charge some nominal sum for options if in-

Dealers in this 100 car drive-away took an average of 5 cars each. These five cars represent only five of the possible 850 or more combinations offered by the manufacturer

sisted upon? Thus, give the buyer of the standard job the benefit of mass production prices.

Perhaps the most helpful expedient so far as the retailer is concerned would be to arrange things so that he can make special changes in his own shop and thereby turn over the stock on hand. Thus, if fenders were all black or all colored, it would be possible to supply six wheels on demand by swapping fenders. This could also apply to special attachments including safety glass when optional. Moreover, the dealer might equip to recolor stock wheels when needed.

It looks like a good idea all around because it would simplify the factory problem in planning and scheduling and would certainly simplify the estimates of the sales department for advance seasonal production. By the same token it would take a burden off the dealer's shoulders because he could supply the buyers' wants quickly from stock on hand.

If the factory organization can get together with the dealer on this question it should be possible to decide where to draw the line in the price class. The dealers' practical experience would be a big help in this connection.

Table 2 illuminates the situation, for if we examine the figures we find that the greatest production of cars is in the wholesale price class running \$1,000 and under. Proof of an upward trend during the past five years is evidenced by the fact that in 1928 the percentage of cars in this price class was 84.3; in 1929, 89.5; 1930, 90.8; 1931, 93.5; and the first seven months of 1932, 97.7 per cent.

At any rate, the problem confronting the dealer is a real and serious one if we are to judge by the reaction of many dealers in various parts of the country. It is at least worth while investigating.

Table II
Estimated Car Production by
Wholesale Price Classes*

	(Percentages of Total)				
	1928	1929	1930	1931	1932 7 Mos.
\$500 and under	42.5	54.1	60.8	65.2	62.5
\$501-\$750	30.3	27.3	23.1	20.3	24.4
\$751-\$1,000	11.5	8.1	6.9	8.0	7.8
\$1,001-\$1,250	8.2	5.1	4.3	2.7	2.1
\$1,251-\$1,500	3.2	2.1	1.8	1.2	1.5
\$1,501-\$2,000	2.7	2.0	1.9	1.7	.7
\$2,001 and up	1.6	1.3	1.2	.9	1.0
	100.0	100.0	100.0	100.0	100.0
Under \$1,000	84.3	89.5	90.8	93.5	94.7
Over \$1,000	15.7	10.5	9.2	6.5	5.3

* A. I., October 1, 1932.

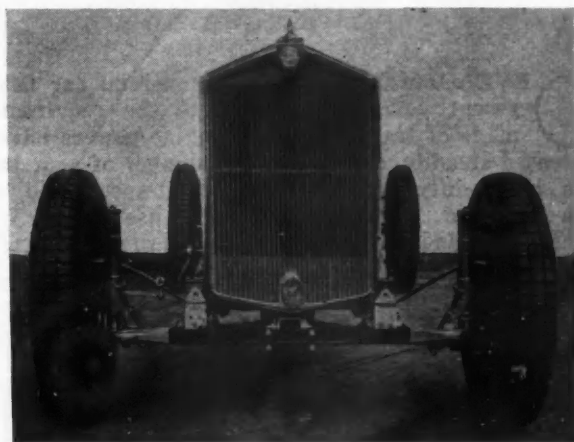
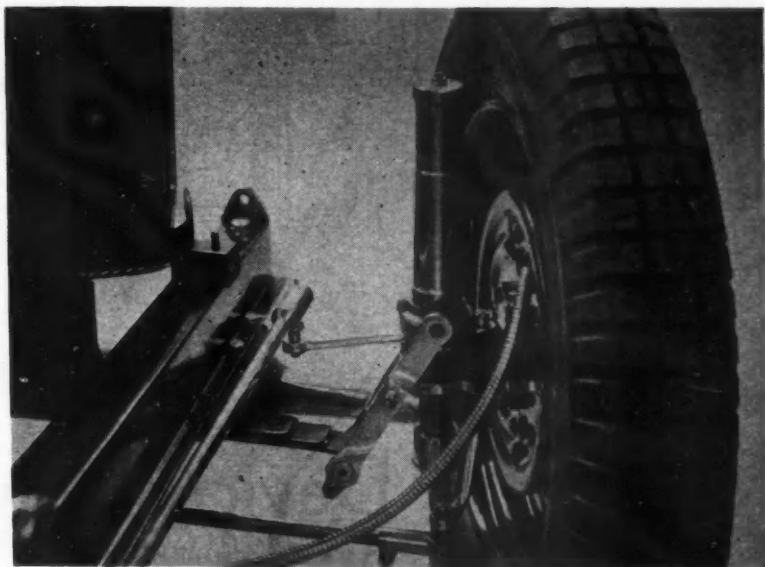
Mathis "Four" Shown at Paris Show With Independent Wheel Suspension

AMONG the new cars exhibited at the recent Paris Show was a four-cylinder, 8-hp. Mathis called the Emyquatre. The frame of this vehicle consists of two box-section side rails, atomic hydrogen-welded. This frame is claimed to be much simpler and far more rigid than any light-car frame ever built. It has two cross-members only, both tubular, located at the ends. No rivets are used throughout the whole frame. The general design of the frame can be seen from the accompanying illustrations. The new frame weighs slightly less than the conventional frame. It is made completely of standard-gage sheet metal of 2 mm. (0.08 in.) thickness. One advantage claimed for this frame is that in winter time the exhaust gases can be discharged through the frame rails, thus producing a very decided heating effect in the car.

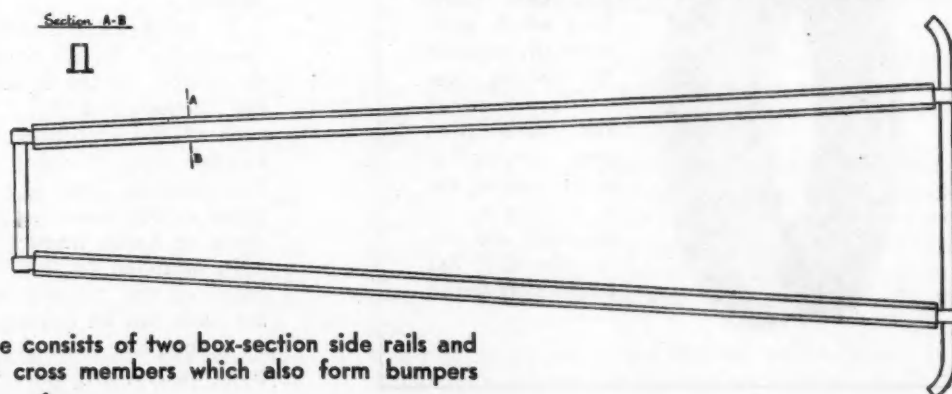
The engine of the Emyquatre has three-point suspension, two of the supporting points being located at the front and the third at the rear under the transmission. Either a four-cylinder or a six-cylinder engine is fitted.

Being not thoroughly convinced of the public's desire for independent suspension, the manufacturer has arranged to build the car with either the ordinary suspension by semi-elliptic springs at the front, or with independently sprung wheels with hydraulic shock absorbers built into the steering heads.

The car is equipped with a four-speed transmission and also with a free-wheeling unit. The manufacturer maintains that a four-door sedan with an engine of only 8 hp. according to the French fiscal rating, with a body that will seat four or five passengers in comfort, which will thus weigh from 55 to 65 lb. per effective horsepower, must be equipped with a four-speed transmission in order to handle properly on hills. The inside width of the body at the front seat is 53 in., which affords ample room for three passengers in the front seat. The general design of the body is of the aerodynamic type, and it is of all-steel construction.

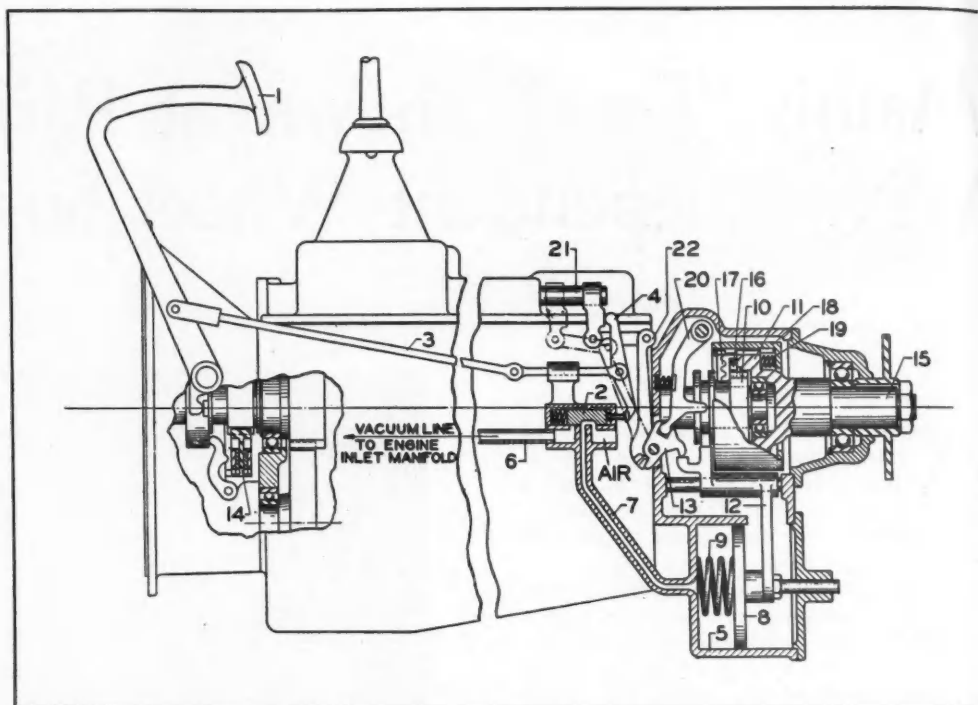


The two views above show the independent front wheel suspension of the Mathis Emyquatre



The frame consists of two box-section side rails and only two cross members which also form bumpers

Fig. 1-A—Diagrammatic drawing of Spicer synchro-shift unit for heavy-duty vehicles shows unit in driving position



Device Developed by Spicer Shifting Easy on Multi-Speed

DEVELOPMENTS in the commercial car field in recent years have added to the requirements made of transmissions. Engine powers have increased steadily, and so has the number of gear ratios in heavy-duty transmissions, eight-speed and even twelve-speed transmissions being in use today. While these units in many cases have helped to speed up trans-

portation in hilly country, the difficulty frequently experienced in completing the shift has operated against them in three ways:

1. The vehicle operator will not shift if there is any way for him to avoid it.
2. If he attempts to shift on a steep hill, he has trouble getting into the lower gear, and sometimes he has to bring the vehicle to a complete stop and start all over again.
3. These considerations have held back the adoption of gearboxes having a large number of reductions.

There always has been plenty of argument as to whether a small engine combined with a multiple-speed transmission or at larger engine together with a transmission with relatively few speeds is best. So far the latter combination has had the preference in most cases, and chiefly by reason of the gear-shifting difficulty.

To meet these conditions in the truck field, a new "accessory" for its Brown-Lipe transmissions has been developed by the Spicer Manufacturing Corp. called the "Synchro shift." It is a unit which bolts to the rear of the transmission case and contains a jaw or toothed clutch which automatically disengages the transmission from the rear axle whenever the clutch pedal is depressed, as for gear shifting, and connects them up again when the shift has been completed.

In addition to this, there is a clutch brake at the front of the transmission, so that the gears within the case can be quickly slowed down or even brought to a complete stop for making the shift. With this combination, any gear within the transmission can be



Fig. 2 — Over-running clutch and cam members which automatically reestablish driving connection between the transmission and propeller shaft when the engine is speeded up after the shift has been completed

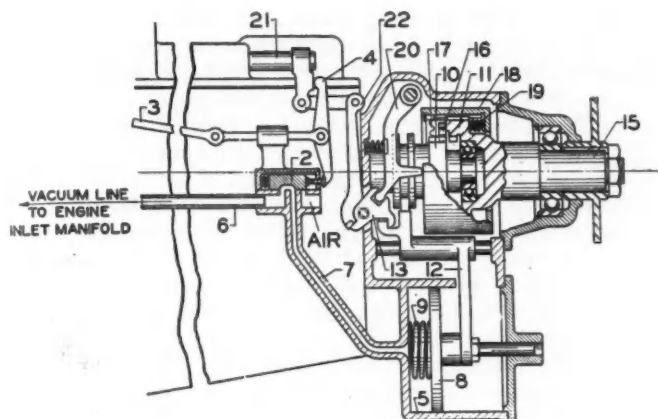
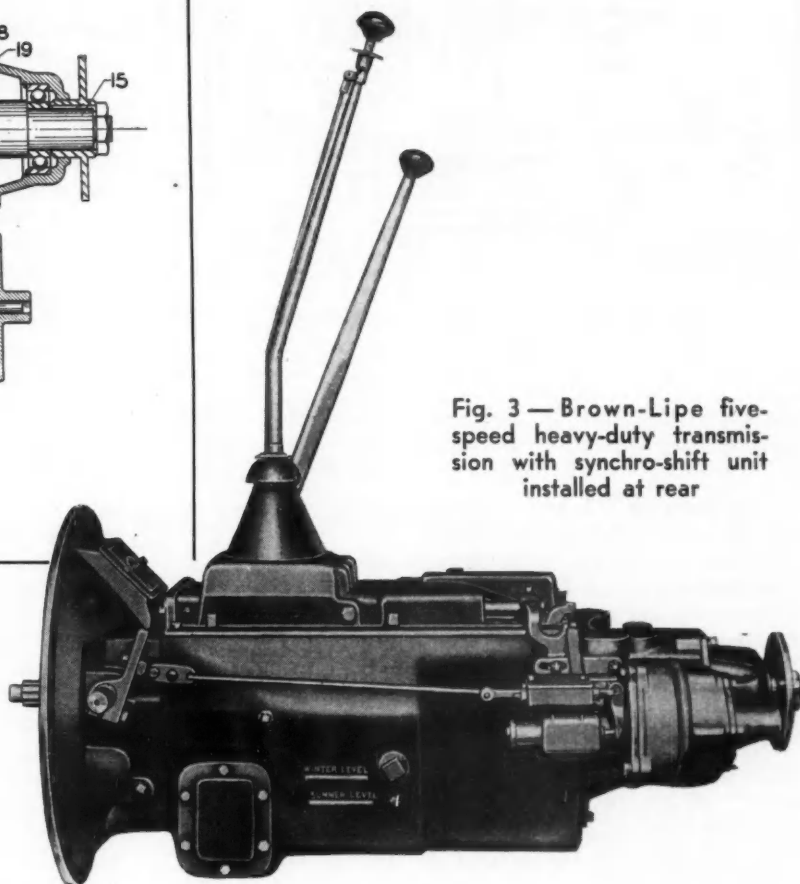


Fig 1-B—Shows it in the disengaged position ready for gear shifting

Fig. 3 — Brown-Lipe five-speed heavy-duty transmission with synchro-shift unit installed at rear



Makes Gear Transmission

engaged at any time regardless of engine or vehicle speed, since the transmission is disconnected at both ends. The result is that gear changes can be quickly made under all conditions and without requiring the customary "perfect timing" of the shift. Since there are no outside masses connected to the gear shafts, the shocks occurring when the gear teeth come in contact are very light.

What happens in the unit when it is desired to make a shift can be followed best by reference to the accompanying diagrammatic drawing (Fig. 1). When the main clutch pedal 1 is depressed, control valve 2 (shown closed in the left view) is opened by connecting link 3 to the position in the right-hand view, thereby permitting manifold vacuum from 6 to enter line 7 and actuate the piston 8 against the pressure of spring 9 in the unit case 5.

It will be noted that when this piston is "sucked" from the piston in which it is shown on the left to that shown on the right, the forging 12 is also pulled over, permitting pawl 13 to drop into the slot provided for it, and locking the piston in that position.

At the same time forging 12 engaging collar 10a has moved this collar to the left. This results in disengaging the jaw clutch by pulling the teeth on gear 10 out of engagement with those on 11. The latter are integral with a shaft to which is splined a universal joint companion flange, while the aforementioned collar is splined to an extension of the transmission main shaft.

The transmission, therefore, is now disconnected from the engine by the main clutch, and it is also free

from the rear axle and propeller shaft. This action has been taking place during the first part of the movement of the clutch pedal. Continuation of that movement now actuates a clutch brake 14, which slows down the gears within the transmission case. Any gear can now be engaged within the transmission, just as if the truck were standing still.

When the shift has been made, the clutch pedal is released in the normal manner, releasing the clutch brake and causing the transmission gears to revolve in proportion to engine speed. The transmission, however, is still disconnected at the rear end, because of the locking action of pawl 13.

The operator having completed his shift and re-engaged the clutch now steps on the accelerator. When the engine reaches the speed corresponding to that of the truck, taking into consideration the transmission reduction, the dog clutch at the rear is automatically reengaged, and the driving connection is completed.

This is accomplished in the following manner: Splined to the sliding member of the dog clutch 10 there is the inner member 15 of a simple over-running clutch, or free-wheeling unit. The outer member 15b of this over-running clutch is splined to drum 16, which is carried on splines on the tail shaft 11 of the unit.

While gears are being shifted, parts 10 and 15 are either standing still or moving very slowly, while drum

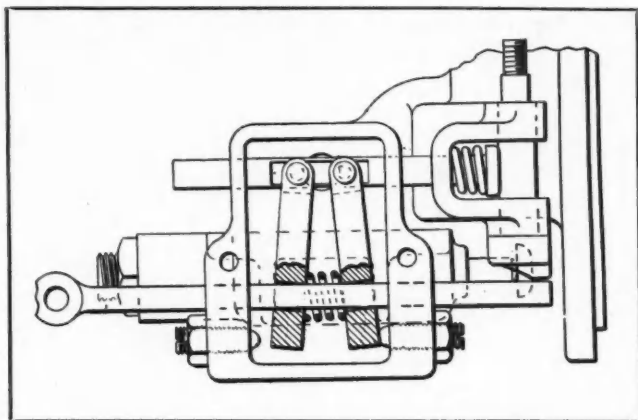


Fig. 4—Details of the vacuum-control valve which requires no adjustment in service

16, the member 15b and shaft 11 turn at a speed corresponding to the vehicle speed.

When the engine is accelerated after making the shift, as soon as parts 10 and 15 reach the same speed as drum 11, rollers 15a lock the units together. Part 15b then tries to turn faster than the cammed member 18, and these two members try to separate by "riding" up the faces of the cams shown, moving drum 16 to the left against the pressure of springs 17.

This movement of the drum moves lever 19 to the left, lifting pawl 13 out of its groove. This releases piston 9 which, under the pressure of spring 9, returns to the position in which it is shown in the left-hand view, and through the sliding member 12 reengages or meshes the teeth of the dog clutch on parts 10 and 11. The drive is then engaged.

With this arrangement, it will be noted, it is possible

to free wheel at will in all speeds except reverse. If the clutch pedal is depressed instantaneously, and released, the transmission will remain disconnected at the rear until the accelerator is depressed, or as long as the engine is idling. Opening the throttle, however, results in immediate reengagement at synchronous speed, after which the connection is maintained until the clutch pedal is once more depressed.

To prevent "free wheeling" in reverse, control valve-actuating lever 4 is fulcrumed on a bracket fastened to the end of the reverse shifter rod extension. When reverse is engaged, lever 4 is in such a position that depressing the clutch pedal does not open the control valve (shown in dotted lines in the left-hand view). As an additional precaution, the engagement of reverse through link 19 holds pawl 13 in such a position that it cannot drop into the groove in sliding member 12, and thereby lock the unit in the free wheeling position.

For easy engagement not only are the teeth in the jaw clutch on members 10 and 11 chamfered, but alternate teeth are undercut so that considerable difference in speed between the two members does not prevent engagement.

The drawings in Fig. 1 are merely diagrammatic and do not represent actual details. In practice the entire unit is located at right angles to the position shown, as may be noted from the photograph of the assembled unit in Fig. 3.

Fig. 4 shows a detail of the interesting control valve used. It is self-adjusting and self-compensating. When the control rod is moved to the left, the left-hand arms bind on the shaft and cause the valve to move. When the rod is moved to the right, the left arms are released, and the right arms bind on the rod and return the valve. In this manner the large travel of the clutch pedal (several inches) can be translated into the small travel required by the control valve. The design also assures full effectiveness of the control valve operation regardless of clutch pedal adjustment which may be required to compensate for wear of the clutch lining.

Bremac, of Rear-Engine Design, Will Make Initial Showing During New York Show

(Continued from page 521)

Engine, clutch transmission and axle housing, it will be noted, are all in line, with the engine toward the front and the axle toward the rear. The front end of the engine is also universally jointed from the body framework in an insulated mounting, permitting controlled universal motion within limits of the rear unit.

Drive and torque reaction are taken through the cantilever springs, which are approximately flat. Engine and transmission controls are through flexible conduit cables of the Bowden wire type. An emergency brake, similarly operated, is located at the rear of the axle housing on the end of the worm shaft.

Rear axle reduction of $4 \frac{3}{7}$ to 1 is in keeping with the high-speed design of the engine. The latter has a displacement of approximately 170 cu. in.

Experimental production is being financed by Fred D. Clark of Sydney, Ohio. It is expected that the first three cars of different body model design will be ready for exhibition during New York Show week. It should be understood that the above mentioned wheelbase of 146 in. holds good only for the five-passenger sedan. Other body models would have different wheelbases in proportion to body design for streamlining. Tail and nose for the different body models produced, however, should be identical, so that the only production change of major consideration would be in the center section.

The car, it is estimated, will sell in the upper medium-priced range and will be sold through exclusive distributors. It is planned to manufacture or assemble cars on a strictly custom basis—on order.

Factory Problems and Public Taste Demand Gradual Changes in Design

Says—

Henry M. Crane

HENRY M. CRANE, whose ability to turn back the pages of the chronicles of automotive history surpasses that of most men, took the members of the Philadelphia Section, Society of Automotive Engineers, on an excursion into the future of automotive design on Oct. 12. He is technical assistant to the president, General Motors Corp., and a past president of the society. He indicated his belief that:

1933—and Beyond

"This coming year there will be offered cars selling at less than \$700 that will be capable of a maximum speed of 75 m.p.h.—and it won't take a couple of miles to accelerate to this speed.

"We probably have been even a little too fast in building cars capable of the present high-speed ranges without first giving sufficient attention to making them safe at these speeds. These factors are now getting their due attention.

"There is a great difference in the roadabilities of different cars at 70 m.p.h. Steering gears have hardly kept pace with the demands made upon them. Gears with a ratio of 15/1 or 16/1 are desirable, but to make steering easy on large cars, ratios of between 18/1 and 19/1 are generally used although they are rather slow.

Balloons and Steering Gears

"The steering gear problem was pretty well solved when the balloon tires came along. When these were first shown at Spring Lake, before the S.A.E. summer meeting there, they introduced new steering problems.

Seat-Adjusted Shock Absorbers

"Last year we got rather excited about seat-adjustment of shock absorbers. We may expect to see shock absorbers adjusted to suit average road conditions for the particular car on which it is installed.

Independent Suspension Has Merits

"Independent springing has progressed considerably abroad, and is being watched closely here. Lightening of axles has served to improve riding qualities.

Automatic Transmissions Are Here

"Completely-automatic transmissions are mechanically practical, and will be generally adopted if the public shows sufficient interest. It will, naturally, add to the cost, and time only will tell how far down the car price scale it will make its way."

Better ventilation, too, will find its way in this year's

models, Mr. Crane indicated. In this field, he said, railroads had beaten the automotive engineer in making improvements.

Appearance and Streamlining

Appearance still plays an all-important part in automobile merchandising, the speaker believes. "The fully-streamlined car," he said, "is not attractive and is too long for easy handling in traffic.

"Peanut" Automobiles

"Generally speaking, I have found that enthusiasts for the diminutive car think it would be an excellent thing for others to buy. None seem willing to buy them themselves. Tax schedules overseas force this type of design, and although a man may own one of the 'peanut' cars, he probably longs for a larger, more comfortable and more powerful automobile designed as American cars are built.

"Certainly this type of car would have no value to speak of in Wyoming and Montana, where even a Model T Ford is almost useless as compared with the new Ford, Chevrolet or Plymouth. In such localities high sustained speeds, ability to carry heavy loads and give a rather high degree of riding comfort is essential."

Costs of manufacture, he pointed out, do not decrease in proportion to reduced size when cars are projected to be of "midget" size. The cost of powerplant and component parts remains at about the present cost for the standard American low-priced units, such as Chevrolet, Ford and Plymouth cars.

Discussing this point in some detail, Mr. Crane traced the history of a small European design. The German Opel firm was acquired some years ago by General Motors. Standard U. S. practice formed the basis of the design, but the entire vehicle was scaled down to the smallest practical dimensions. It was found that the thickness of sections could not be reduced appreciably at all, and little savings could be made in sheet metal thicknesses because of requirements in stamping processes.

Even if the powerplant were made considerably smaller, it could not be made much cheaper. Present-day low-priced cars sell at about 20 cents a pound, making it impossible to use aluminum or other expensive metals.

It was the opening meeting of the season, with Chairman J. P. Stewart presiding. Norman G. Shidle,

(Turn to page 544, please)

Weight and Cost of Steel Dies Reduced b

With dies built up from steel plates there is no scrapping of castings or patching of flaws; some interchangeability is available and salvage value is increased

by Everett Chapman

Director of Research and Engineering, Lukenweld, Inc.

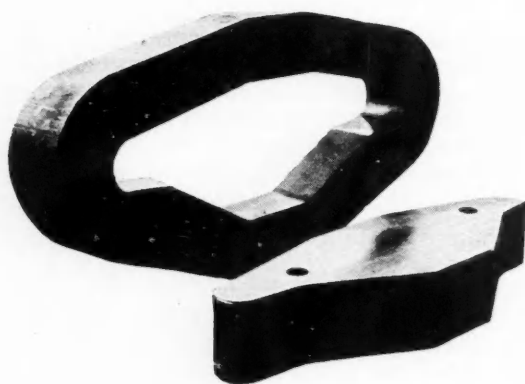


Fig. 1—This draw ring and punch was gas cut from single piece

IN discussing a particular application of the art of welding we are confronted with the limitation of having to talk in generalities in order that we may draw the broad picture. The application of gas cutting and welding to the fabrication of dies is no exception to this.

Heavy plates are available in thicknesses up to 16 in., and total weight as high as 55,000 lb. These plates may be cut to any desired profile or sketch by means of the oxy-acetylene cutting torch. We then have immediately available as our primary building block the various odd shapes that are required by the die industry, in a material which is two and one-half times as stiff as the material used heretofore, a homogeneous material which has no internal defects, which can be welded at an economical cost and whose price is that of rolling mill material.

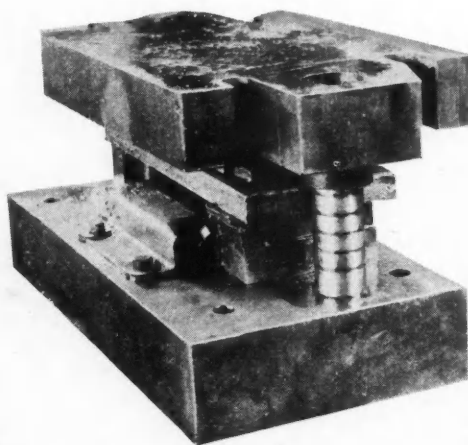


Fig. 2—Some idea of what can be accomplished with gas cut plates in line of standardized parts is seen here

Fig. 1 shows a gas cut draw ring with its accompanying punch. With the large stocks of steel which are available at the commercial mills this punch and ring can be made ready for the machining operations in about 30 minutes.

The science of welding is dominated by the principle that one may put the required amount of material in exactly the right place, and these materials may vary in their compositions. We may, for instance, in building up a cutting die, use inexpensive low carbon steel in the main body and, where a hard shearing edge is required, build up a deposit of hard alloy which may be ground to the required contour. Several alloys are available for this application whose Brinnell hardness runs as high as 700. This operation

is eminently cheaper than the old method of inserting hardened steel strips. It eliminates the machining operation and most of expensive hardened material which merely provides a sufficient body for the bolts which secure the strips to the die.

The small die set illustrated in Fig. 2 gives some idea of what can be done with gas cut plates in the line of standardized parts. This set consists of merely two plates cut to the proper contour and thick enough to provide a good body support for the guide pins.

The flexibility of the cutting torch combined with the welding operation is illustrated in the set of blank holders shown in Fig. 3. On

these pieces the cutting has been done in two directions, the component parts being welded to form the completed blankholder.

Punch risers and necks are readily fabricated from plate by this new process as shown in Fig. 4. In the design of parts, such as these, the designer is freed

by Use of Gas Cutting and Welding

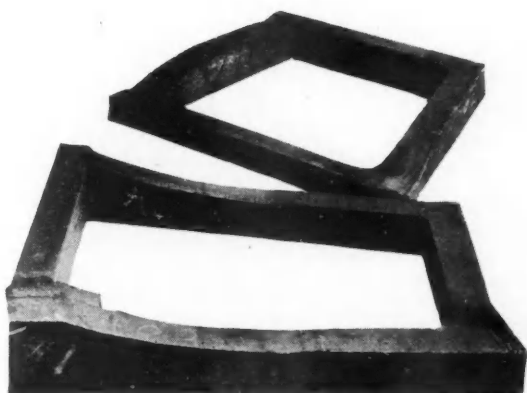


Fig. 3—The flexibility of the cutting torch combined with welding is shown in this set of blank holders

of the limitations imposed by casting practice. The welding-minded designer will appreciate his freedom in being able to put a member immediately in back of a point of applied load without having to fill in a large hole to avoid the core cost. Well designed dies in welded steel have actually shown a weight reduction of 65 per cent without sacrificing one bit the structural rigidity so essential to the production of accurate pieces.

With the duty on presses and dies mounting to meet heavier production demands, the superior rigidity of steel shows up beautifully in the increased accuracy made possible by the fact that the deflections may be reduced to a considerable degree. Thus, a simple bolster or reducing plate 10 in. thick will have only 40 per cent of the deflection of a cast-iron bolster 10 in. thick. We may turn this superior stiffness to account in another manner, namely, to reduce the amount of steel necessary to duplicate an already satis-

factory performance. If our cast-iron bolster 10 in. thick was completely satisfactory we may substitute a steel bolster plate only 7½ in. thick to get the same structural performance.

Fig. 5 shows an example of a large cam-driven, side-acting die in which the base and driver supports are of welded steel, while the punch drivers are of cast iron. A combination of welded steel and simple castings will be the ultimate construction in the dies of the future. There are many places where the superior wear characteristics of cast iron under heavy pressure absolutely dictate its use, but the picture in no way suffers from this fact. Thus for a large fender die the ideal combination will use a steel holder, in itself a guarantee against the breakage of such

large expensive items, with the involved contours in cast iron.

The salvage values contained in this whole picture are very attractive. Sufficient attention paid to the original design of die holders should allow of some interchangeability, and the very nature of the gas cutting process on sound steel plate insures that the reducer plates and bolsters may be used over and over again. There is no scrapping of castings or patching of the piece in the machining operation because of the presence of a large flaw at a critical point.

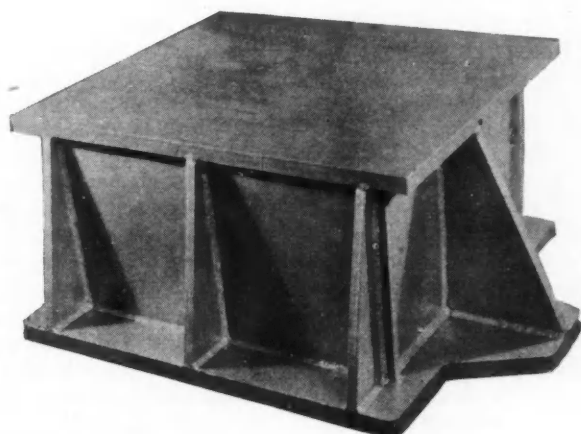


Fig. 4—Punch risers and necks are readily fabricated from plate by this new process

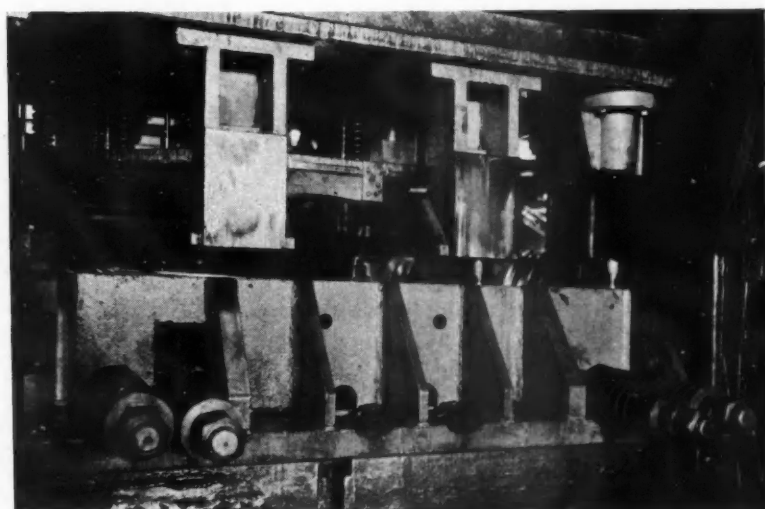


Fig. 5—This large cam-driven side-acting die has base and driver supports of welded steel

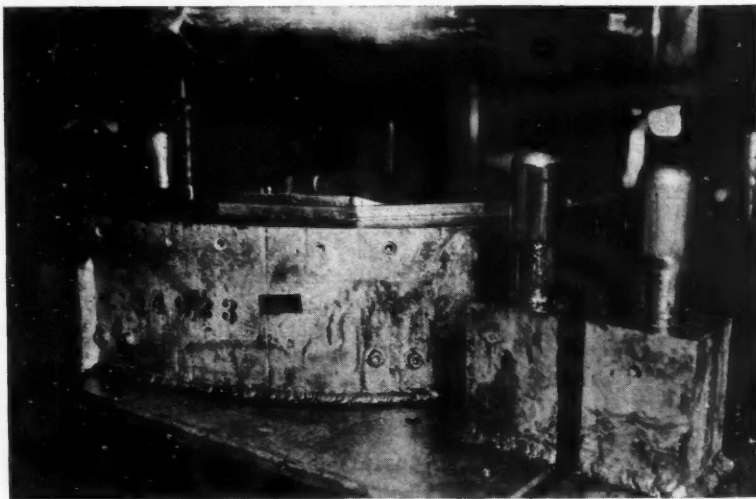
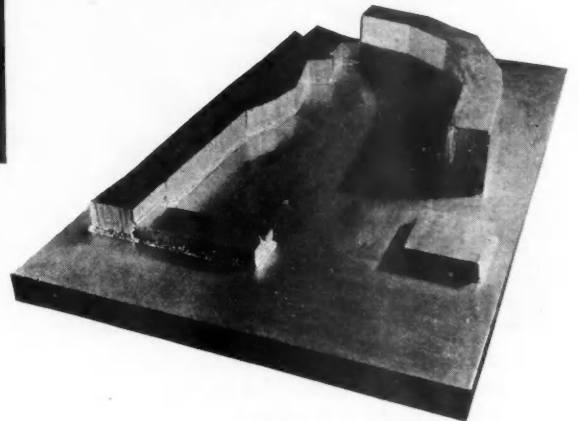


Fig. 6—Here is a welded steel dieholder supporting a cast-iron contour piece

Fig. 6 illustrates the use of a welded steel dieholder supporting a cast-iron contour piece. This large shell die shown in Fig. 7 has been fabricated from steel plate by cutting and welding at a cost of about 5 cents a pound and weighs about 1/3 of the equivalent cast-iron die. This means that the process will compete with approximately 1 2/3-cent cast iron. By equivalent, it is meant that this die will have the same deflection characteristic as the cast-iron die. The design viewpoint has been that the cast die heretofore used has been satisfactory. If the preceding design had not been satisfactory the necessary increase in stiffness can be incorporated at slight additional cost.

In addition to these obvious advantages from the cost and operating viewpoint there are several things that do not show up until the process has been thoroughly installed. In one large plant where many of these welded dies and bolster plates have been used, the lighter weight dies have reduced dangerous floor loadings to a comfortable point. The savings in the patterns which would have had to be bought, the savings in storage space for these same patterns, the insurance on the storage building have all accrued to the management who saw fit to initiate this revolutionary move.

Fig. 7—Below is shown a large shell die fabricated from steel at a cost of 5 cents a pound and weighing 1/3 of the equivalent cast-iron die



The picture is not one that is easily painted nor one that is easily assimilated. No welded steel activity has ever turned out that way. The engineering department has to learn to think differently: more freely in terms of their natural function as engineers and less in terms of the foundrymen. The die shop will have to become acquainted with the production finishing of mild steel in contradistinction to the nicely machinable cast iron to which they are accustomed. Speed and feeds will change, as will the shapes of the tools. To compensate for this, there will be less actual metal to remove, no sand pockets to dull tools, no hard skin to plow under, and no defects to pop up at the last minute. Those who have been working with the problem for the last three years have a glimpse of the savings to industry which are involved. As is usual, the reward is there for the executive with a vision.

University of Nebraska Tests Caterpillar Tractors

THE full line of caterpillar tractors of the Caterpillar Tractor Co., Peoria, Ill., was submitted to tests recently at the University of Nebraska and reports of official tractor tests Nos. 204 to 209 have been issued as a result. The results of the tests are summarized in the following:

Model	15	20	35	50	65	Diesel
Max. horsepower	20.39	27.43	42.80	56.14	78.41	77.08
Corr. speed, r.p.m.	1,501	1,251	850	850	650	700
Spec. fuel cons'pt'n.	0.668	0.641	0.671	0.728	0.739	0.580
Rated horsepower test	18.75	24.26	39.79	51.75	72.32	74.73
Corr. speed	1,500	1,249	850	850	650	702
Spec. fuel cons'pt'n.	0.682	0.648	0.671	0.705	0.746	0.540

Model	15	20	35	50	65	Diesel
Rated-load drawbar test, 10 hours, second gear						
Drawbar horsepower	13.74	18.23	29.37	39.23	54.18	53.78
Drawbar pull (lb.)	2,023	2,668	4,470	6,070	8,004	7,300
Tractor speed (m.p.h.)	2.55	2.56	2.46	2.42	2.54	2.76
Slip in per cent	1.96	1.36	0.87	1.34	1.85	1.05
Fuel, lb. per hp.-hr.	0.58	0.826	0.783	0.887	0.910	0.642

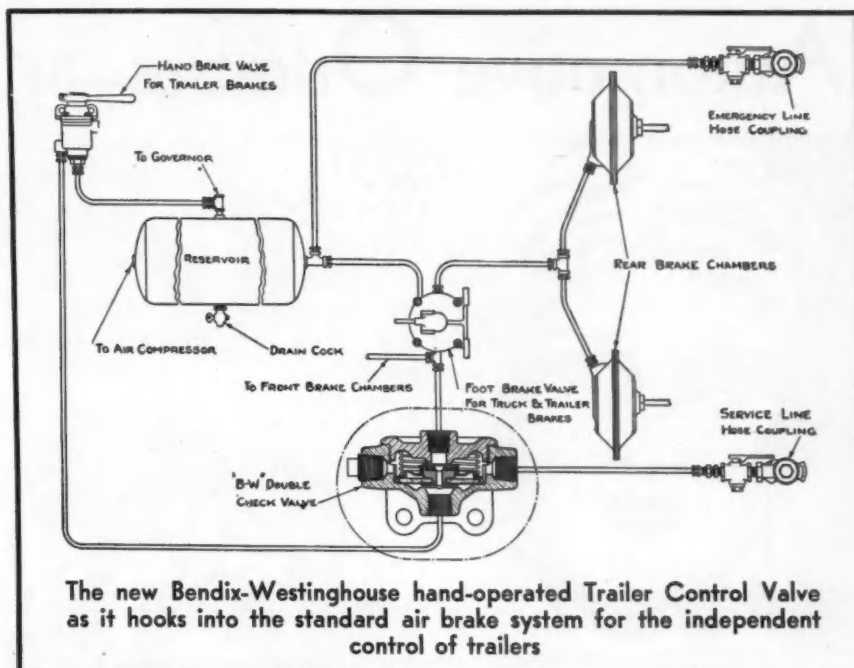
Maximum-load drawbar test						
Drawbar pull	3,105	4,252	8,169	12,061	13,597	11,991
Speed	1.96	1.93	1.64	1.53	1.87	2.01
Drawbar pull	2,507	3,267	5,542	7,457	9,906	8,817
Speed	2.54	2.55	2.45	2.42	2.53	2.75
Drawbar pull	1,707	2,207	4,005	4,996	4,950	4,449
Speed	3.44	3.53	3.22	3.36	4.35	4.71
Drawbar pull			2,574	3,337		
Speed			4.57	4.64		

The specifications of these tractors have been printed previously in these columns, most of them in the Statistical Number.

Bendix- Westinghouse

Develops

Trailer Control Valve
Stop-Light Switch
Air-Buzzer



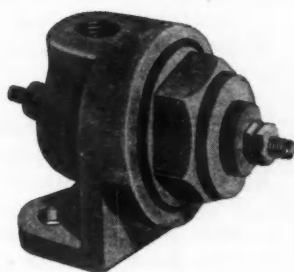
ADDING further to the flexibility of the air brake system, the recently developed hand-operated Trailer Control Valve offers distinct advantages to the operator of heavy-duty highway trains. Exceptionally valuable where trailer operations encounter severe down-grades, this unique valve permits the operator to keep his train stretched during service brake applications and eliminates the possibility of jack-knifing due to possible trailer run-ins; providing, of course, that the trailer brakes are in proper operating condition. The Trailer Control Valve is designed for cab-mounting and functions independently of the truck brakes and the conventional foot-brake valve, although interfering in no way with their normal operation. The Trailer Control Valve also offers motor train systems an additional safeguard in emergencies. Included in specifications for new units, the Trailer Control Valve may be furnished at a slight increase in cost over standard equipment and its design permits its adoption and easy installation on equipment already in service. For field installation, the Trailer Control Valve is handled exclusively by the Bendix-Westinghouse distributing organization.

AN unique device, known as the Low Pressure Indicator, is another recent development of the Bendix-Westinghouse Automotive Air Brake Company's laboratories at Pittsburgh. Entirely automatic, this device warns the operator if, for any reason, an abnormal depletion of pneumatic pressure in the braking system should occur. Normally set to operate, should line pressures be reduced to fifty pounds, a point which still leaves a sufficient margin of safety, its warning is instantaneous and unmistakable. Although a buzzer in the cab is considered the standard signal for use with this device, a flasher light on the dash may be substituted—or a combination of both used—if desired. The Low Pressure Indicator is particularly valuable on those operations whose routes include long hills where, due to the increased possibility of excessive or careless use of the brakes, abnormal depletion of air pressure might occur. Operation of the Low Pressure Indicator is entirely independent of the conventional dash air gage which gives constant visible indication of the pressure in the braking system. It is, in reality, an ounce of prevention which

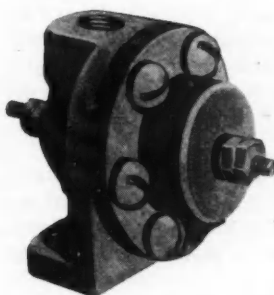
(Turn to page 543, please)



The Trailer Control Valve showing its bracket for cab mounting and lever for hand operation



The low pressure indicator



The stop-light switch



The new Bendix-Westinghouse air buzzer showing its rocker control arm for cord operation

Automotive Oddities—By Pete Keenan



STALL IN AUTO RACE

*Philadelphia Newspaper
Heading about
Bob Stall the Racer
Sept 1932*



WENDELL ELLSWORTH DROVE THIS TRUCK NEARLY 200,000 MILES WITHOUT A CHANGE OF TIRES. *Denver, Col.*



A PILOT RECENTLY FLEW A PLANE SAFELY ACROSS THE ENGLISH CHANNEL WITH AN ESCAPED WILD TIGER ABOARD.

Write us if you know an oddity

The NEWS TRAILER

Andre Citroen, brilliantly combining something of the advertising genius of the late William Wrigley, Jr., and production ideas of Henry Ford, gave something for the shades of P. T. Barnum and other great showmen to think about during the recent Paris show.

He invited all of France to be his guests at the show. He offered to pick up his prospects at their home in the provinces, transport them to Paris by motor coach, provide hotel accommodations, give free tickets to see the show and take them home again. Shrewd, his agents *first* looked over the "guests," approved invitations to "suitable" ones only.

Chicago's crime record was again in the limelight last week when the Automobile Trades Association announced that during the three months ended Sept. 30, 10,199 cars and trucks were stolen, while only 9068 were sold.

Goodrich officials are pleased with the report of vegetables grown on the 275-acre tract by company employees. The report, apparently, was developed by someone in the tire statistical department—and for the first time we've seen peppers, radishes, etc., listed

by the piece. Anyway, more than 60 tons were distributed to those who helped to raise the crops.

Chicago is race-conscious. Three speedways are taking in big gate receipts these days since the new Calumet "speed-bowl" has been opened to give a thrill to the most sophisticated race fan. Death-defying turns, hair-raising banks and neck-breaking spills can be guaranteed—*ladies and gents . . . right this way!*

Five thousand persons witnessed the unveiling of a marker Sunday at the Portland, Ind., birthplace of Elwood Haynes, pioneer in the automobile industry.

President Hoover sent a message which read:

"His contributions to the world of science and invention have earned for him the gratitude of the nation."

Doughty Harry Olsen of Oslo, famed whale-hunter, forsook the crow's nest in the top shrouds, learned to fly an airplane and now directs whaling boats in comfort. Pity the poor whales if he begins to harpoon 'em from the cockpit.

NEWS

Truck Sales Up, and Cars Show Improvement

Reports from 26 States
Better Predictions of
September Registrations

DETROIT, MICH., Oct. 17—An increase, instead of the usual seasonal slump, in commercial car sales and an improvement in new passenger car sales in September is indicated by the weekly report of R. L. Polk & Co.

Commercial car sales in September, according to reports from 26 states, exceeded those in August for only the second time in the last six years, the other increase having been recorded in 1930. It was estimated sales totaled 15,300 as against 15,081 in August.

Registrations in the 26 states reporting totaled 6357, a gain of 5.34 per cent over the total of 6035 for the same states in August, but a decline of 42.27 per cent under the 11,011 in the same states in September, 1931.

Sales of new passenger automobiles were in considerably greater volume than was indicated by the preliminary reports a week ago. On the basis of returns from 28 states it was estimated that sales totaled 78,400, as compared with 93,457 in August and with 124,903 in September, 1931.

Registrations reported in these 28 states were 37,825, a decline of 14.80 per cent from the 44,399 units registered in those states in August and of 38.18 per cent from the 61,188 units registered in the same states in September, 1931.

Ford Bulletin to Employees Urges Reelection of Hoover

DETROIT, Oct. 17—Bulletin boards at the River Rouge plant of the Ford Motor Co. and at the executive offices at Dearborn displayed the following notice today:

"The Ford Motor Co. is not interested in partisan politics. We do not seek to control any man's vote.

"We feel, however, that the coming election is so important to industry and employment that our employees should know our views.

"President Hoover has overcome the forces that almost destroyed industry and employment. His efforts to start the country back to work are beginning to show results.

"We are convinced that any break in his program would hurt industry and employment. To prevent times from getting worse and to help them to get better President Hoover must be elected.

"These are our convictions and we submit them to the serious consideration of all Ford employees throughout the country and their families."

The bulletin was sent to Ford offices in every state.

Chrysler Announces 6-Cylinder Plymouth

Price to Reach New Low
in Chrysler History,
Head of Company Says

DETROIT, Oct. 17—The new Plymouth will be a 6-cylinder automobile with floating power and will carry the lowest price, by far, ever placed on any Chrysler Motors product.

It will replace the present 4-cylinder Plymouth, on which the base list price is \$495. The production program on the new line is progressing rapidly and deliveries on material commitments already have begun.

"This new automobile marks the culmination of more than two years of study and research along engineering, production and market lines," said Walter P. Chrysler.

"For the first time since the original Chrysler car was built in 1924 we have started out with practically a new set of manufacturing facilities.

"Our Plymouth plant has been completely reorganized to take full advantage of the tremendous advances that have been made in machine tool design and manufacturing methods during the past few years."

The model has been two years in preparation, and is said to be new in every detail.

"More than \$9,000,000 has been spent in design and experimental engineering and in retooling the Plymouth plant," Mr. Chrysler said.

Business in Brief

Written by the Guaranty Trust
Co., New York, exclusively for
Automotive Industries

NEW YORK, Oct. 20—There were many indications of a modest improvement in various lines of trade and industry last week. The cooler weather has brought on a considerable improvement in retail business.

Most of the heavy industries were comparatively quiet; but the slow, persistent upturn in steel output is encouraging in that it is not a seasonal rise.

FREIGHT AT NEW HIGH

Railway freight loadings during the week ended October 1 were the highest for any week this year. The total was 622,075 cars, which marks an increase of 26,329 cars above that during the preceding week, but a decrease of 155,637 cars below that a year ago and a decrease of 349,180 cars below that two years ago.

An estimate of the volume of railway freight loadings during the last quarter of this year places the total at 10.4 per cent below that a year ago.

FAILURES AT NEW LOW

Business failures during September were the lowest in both volume and value for any month in this year, according to R. G. Dun & Co. The total number of failures was 2182, as against 2796 during August and 1936 a year ago. The liabilities involved in the September failures were still high, but the total made a relatively better showing than the record as to number.

N. Y. FACTORY EMPLOYMENT UP

New York State factory employment during September was 6.5 per cent higher than during the preceding month. Total factory payrolls also improved, showing an increase of 9.3 per cent.

CRUDE OIL OUTPUT

Average daily crude oil production for the week ended October 8 amounted to 2,173,000 barrels, as against 2,172,000 barrels for the preceding week and 2,162,700 barrels for a year ago.

FISHER'S INDEX

Professor Fisher's index of wholesale commodity prices during the week ended October 15 stood at 61.3, showing a decline of 1.9 points from the high for the current movement established five weeks ago. Last week's index compared with 61.8 the week before and 62.2 two weeks before.

BANK DEBITS

Bank debits to individual accounts outside of New York City during the week ended October 12 were 35 per cent below those a year ago.

Ford Employment Is Estimated at 50,000

DEARBORN, Oct. 20—Payrolls of the Ford Motor Co. are estimated to show at present less than 50,000 employees, mostly on a three-day week basis.

Toledo Steel Products Forms Canadian Firm

TORONTO Oct. 20—Toledo Steel Products Co. has formed the Toledo Steel Products Co., Ltd., of Canada.

French See Spread of Diesel Engines in Commercial Vehicles

PARKS (Special)—Rapid spread of the use of Diesel engines for commercial vehicles is seen by experienced observers in the French automotive industry, which has witnessed a decided increase in the manufacture of such engines since their introduction in that country three years ago, according to a survey of the U. S. Department of Commerce.

The automotive division reports that approximately 5000 commercial vehicles equipped with Diesel motors have been put into operation, some of which have run as much as 60,000 miles and have been in operation three years.

Vehicles motored with such engines are now said to constitute more than 80 per cent of the total production of one of the largest French makers of

Manufacture of Oil Engines for French Trucks Shows Rapid Increase in Three Years, Report States—

heavy vehicles.

Diesel-engined machines in France cost from 10 to 25 per cent more than gasoline machines, but it is estimated by French authorities that economy in fuel consumption at present is about 80 per cent, and that total economy runs about 15 per cent.

These engines will not be used for passenger cars until the unpleasant odor and smoke are eliminated, according to French trade opinion.

Diesel engines are being used on the new "rail automobiles" in France, it was stated.

French Diesel manufacturers are prepared to export their motors, the report stated, and in a number of cases exports have already begun in small quantities.

Amtorg Rejects Soviet Barter

Long-Term Credits Stipulated in Statement Issued by Agency

NEW YORK, Oct. 20—The Amtorg Trading Corp., Soviet commercial agency in the United States, issued a statement respecting the proposal for increasing trade between the United States and Soviet Russia by means of the use of Soviet import goods as collateral for commercial credits. Any such plan, Amtorg declared, would be a "backward step."

While giving qualified approval to straight barter transactions, such as the recent aluminum-petroleum deal between the Soviet Government and the Mellon interests, Amtorg declared that only a system of generous, long-term commercial credits to Soviet Russia could serve as a proper impetus to the extension of Soviet-American trade.

"It should be kept in mind," Amtorg continued, "that barter transactions are necessarily of an occasional character outside of the established channels of trade."

"They cannot serve as a substantial foundation for extensive trade relations between the two countries and should not be permitted to divert attention from the basic issues of adequate credits for American exports to the Soviet Union."

John B. Farr

John B. Farr, 52, a leader in Detroit's industrial circles, died Oct. 17 of a heart attack in Detroit.

Mr. Farr for the last several years had been president of the Kermath

Mfg. Co., of which he was one of the founders. He was the donor of the Kermath Trophy, a perpetual cruise-race prize, which has featured Detroit yacht races for five years. He was widely known in the motor-boat industry and was a member of many clubs.

Mr. Farr for several years past had been an official of the National Association of Engine and Boat Manufacturers. At its annual meeting in New York last January he was elected second vice-president.

Surviving are a widow, Ama Gray Farr; a son, Gray Farr, and a brother, Willis Farr.

Recalls 2000 Foundrymen

DETROIT, Oct. 20—Over 2000 employees returned to work last week, at the Chevrolet foundry here after a two weeks lay-off for inventory.

Making Valve Inserts

DETROIT, Oct. 20—Wilcox Tick Corp. has put into production insert type valve seats for automotive engines, its latest product.

Hans Luthi

Hans Luthi, 52, superintendent of plants for the Nash Motors Co., Kenosha, died Oct. 11 following an operation. He was born in Switzerland in 1880 and came to America as a young man. Entering the automobile engine industry in Boston, he soon became recognized as an expert in engine design and production.

In 1906 he became associated with the former Thomas B. Jeffery Co. at Kenosha as an engine and transmission expert.

When Charles W. Nash purchased the Jeffery works in 1916 and formed the Nash Motors Co., he retained Mr. Luthi, appointing him superintendent.

British Mechanical Industrials Off

Report Shows Severe Drop in Earnings of 62 Firms, Compared With Former Years

LONDON (Special)—A statistical review of the earnings, dividends paid, and general financial status of the mechanical industries (engineering industries) in Great Britain is being published annually by the British Engineers' Association.

The figures and deductions therefrom are based on the annual reports of 62 firms which are selected to represent a cross section of the whole industry. Generally the same firms are selected year after year, though reorganizations, etc., make certain changes in the list inevitable. Of the 62 firms covered this year, 11 are described as in the engineering and allied industries, 23 in general engineering, nine in electrical engineering, 11 in the automobile industry, and eight in the iron and steel industry. Together they have a capitalization of approximately half a billion dollars.

An analysis of the figures obtained by combining the individual reports showed that the net earnings during the past three years were in the proportions of 7.8:5.4:2.6. The total dividends were in the proportions of 6.6:5.3:3.9 in these years. The profits earned on the capital stock averaged no more than 2 per cent last year, although 2.9 per cent were paid out in dividends, and thus the reserves were drawn upon heavily.

Of the total of 62 firms, 26 sustained losses in 1931, as compared with 11 in 1929. Thirty-six of the firms paid no dividends on their common stock.

Graham-Paige Plans Changes in Capital

DETROIT, Oct. 20—Directors of the Graham-Paige Motors Corp. have called a special meeting of stockholders to be held Oct. 24 to vote upon a reduction in capital. It is proposed to reduce the capital from an authorized \$7,000,000 and 2,500,000 shares of no par value common stock to \$5,516,000, consisting of 30,000 preferred shares of \$100 par value, 165 shares of 7 per cent cumulative convertible second preferred stock of \$100 par value and 2,500,000 shares of common stock of \$1 par value.

Globe Union Busy

MILWAUKEE, Oct. 17—The Globe Union Mfg. Co. is now operating at its seasonal peak in the production of batteries, automotive and radio parts, etc. Output is nearly 5 per cent ahead of last year. Since June 150 workers have been recalled.

Use of Cold-Rolled Sheets for Cars Seen

Substitution of Cheaper Stock for Automobile Classification Under Way

NEW YORK, Oct. 20—In some quarters of the sheet steel market, efforts are being made to hasten the substitution of cold-rolled sheets for automobile sheets by body manufacturers and the dropping of the classification of automobile sheets from the roster of finished steel descriptions.

Automobile sheets are sold graded, the purchaser taking a certain percentage of seconds at a discount. Cold-rolled sheets are considered good delivery so long as they are suitable for the purpose for which they were bought.

If they are perfect on one side, a blemish on the other, which would be invisible in the assembled body, would not be objectionable, the good side being marked for the guidance of the buyer.

The prevailing market price for automobile sheets is 2.75 cents, Pittsburgh, and for cold-rolled sheets 2.60 cents, Pittsburgh. Some sellers claim that the marketing of body stock would be greatly simplified if the grading that has become a trade custom in the case of automobile sheets and the buyer's obligation to take a certain percentage of seconds were eliminated.

Pressure on body stock prices has been more than severe in recent months, and while there are some automotive consumers who are extremely fastidious when it comes to this material, the tonnage outlet is into consuming channels demanding nothing more than serviceable sheets at as low a price as possible.

Steel producers receive very little sympathy from automotive consumers when they complain of the inadequacy of prevailing levels and as a result the former have recourse to every possible economy. Substitution of cold-rolled for automobile sheets, it is thought by many sheet rollers, will do away with a good deal in the way of inspection and rejections.

Pig Iron—Middle West markets report fair activity. Prices are generally unchanged.

Aluminum—Dull and unchanged.

Copper—While the market continues to be quoted nominally at 6½¢, delivered Connecticut Valley point, there is no business being done at that level. There have been unconfirmed rumors of sales in the "outside" market at as low as 5½¢ and export copper is being quoted at 5.65¢, c.i.f., Liverpool.

Tin—The London market has begun to recover from its recent spell of weakness. Straits tin for prompt delivery was offered in the New York market at 24.40¢ at the beginning of the week.

Lead—The market is a shade firmer at 3.00 @ 3.05¢, New York.

Zinc—Steady and unchanged.

Correction

In the article on new British models, Oct. 8 *Automotive Industries*, the Sunbeam Company was referred to as a

subsidiary of General Motors. This was a mistake. The British subsidiary of General Motors is Vauxhall Motors, Ltd.

The synchro-mesh transmission was introduced in England on the Vauxhall models.

German Ford Hit By Rival Factories

Win Injunction Restraining Firm from Advertising "All-German" Built Car

BERLIN (Special)—German automotive manufacturers won a petition for an injunction restraining the Ford Motor Co. of Germany at Cologne from designating its new "Baby Ford" as an all-German-built car.

The League of German Automobile Manufacturers alleged that the Ford advertising campaigns in Germany are guilty of misrepresentation because they represent the Ford cars sold in Germany as strictly German-built products, although they were merely assembled at the Cologne plant.

This allegation was answered by the Ford management here with a statement that because of the falling off of business, Ford cars were temporarily being supplied from England, as operation of the big Cologne plant in the present depression would be highly unprofitable.

This temporary expedient prompted its German competitors to seize upon old advertising literature representing that Ford cars built at Cologne some time ago as an exclusively German product, with the avowed purpose of proving the company guilty of misrepresentation under the law governing unfair competition.

Olds is in Refrigerator Field With Kold Hold

LANSING, Oct. 20—R. E. Olds announced last week that he will enter the electric refrigeration field, having taken an option on the Kold Hold Co., Greenville, Mich. He plans to transfer the company's activities to Lansing as the first step in a vigorous expansion program.

Graham-Paige Eights Show 121% Increase

DETROIT, Oct. 20—Graham-Paige Motors Corp. has reported an increase of 121 per cent in the sales of eight-cylinder models during the first eight months of this year as compared with the same period of 1931.

To Buy Equipment

LANSING, Oct. 20—Melling Forging Co. of this city has appropriated \$44,000 for the purchase of new factory equipment to include a forging press and new furnace. The equipment has been purchased.

Free Entry Granted Britain by Canada

U. S. is Hit in Schedule, But Dominion Executives See Little Competition

TORONTO, Oct. 17—Free entry has been extended to automobiles, trucks, buses, parts and equipment manufactured in the United Kingdom by Canada, in provisions of budget resolutions announced by R. B. Bennett, Prime Minister, in giving the terms of the trade agreement between Canada and the United Kingdom. This five-year pact, effective Oct. 13, was signed at the Imperial Economic Conference last August.

Several Canadian manufacturers expressed the belief that British-built cars are less suited to Canadian use than vehicles of United States design and have not found much favor in the Dominion. They are not alarmed at the possibility of serious British car competition.

General tariff rates on motor vehicles, engines, parts, etc., imported from the United States are practically unchanged, but there is a definitely substantial increase in the preference extended to the United Kingdom.

On cars valued at more than \$2,100, retail, at place of production, the preference in favor of the British industry is 40 per cent. For cars in the middle bracket, having a retail value of from \$1,200 to \$2,100, the British preference is 30 per cent, while the preference with low-priced models is 20 per cent.

These percentages are the tariff rates against United States cars in the respective classes, British cars being duty-free.

Canadian tariff rates against various parts and accessories, such as horns, gages, thermostats, speedometers, carburetors, filters, instruments, locks, steering wheels, etc., remain free as before, regardless of country of origin.

There is no increased preference for tops, wheels or bodies. Therefore there is no indication of encouragement to British manufacturers to open branch factories in Canada—at least no increased inducement, because the duties here are unchanged at 20 per cent for imports from Britain and 30 per cent to the U. S.

On the other hand, manufacturers in Canada can now import engines and parts thereof from the United Kingdom duty-free for use in the manufacture of trucks, the duty against U. S. truck engines being 20 per cent. Truck or bus engines of more than 100 hp. may now be imported from England duty-free for replacements, the general tariff rate being 27½ per cent as before.

These concessions have been granted, along with many others, in exchange for privileges and advantages offered by the United Kingdom.

Steady Rise of Commodity Prices Held Most Constructive Factor

Two Per Cent for Each of Three Months Cited by National Foreign Trade Group; Exports are Found to be Recuperating

NEW YORK, Oct. 20—The advance in wholesale commodity prices in the United States by almost 6 per cent since June 30 to September 30, or an average of 2 per cent a month for three months, is the most constructive sign of returning economic stability since the world depression began, the National Foreign Trade Council asserts in a fact-finding study.

Last year after falling by 10 per cent from the first six months of the year, wholesale commodity prices stood relatively firm for the succeeding five months with an aggregate loss of less than three per cent. But a renewed unsettlement of conditions, including the various departures from the gold standard, exchange restrictions set up by 29 nations, and the imposition of new tariffs and other barriers to world trade, once more started the downward drift of our own as well as world prices.

We are now again in the midst of a recuperation from these retrogressive forces. Each one of them can only be counteracted ultimately by a real resumption in world trade. The

key to that resumption lies more nearly in this country than in any other. That is why the present rise in our wholesale commodity prices is an indication of improvement.

Coupled with it is the steadily increasing tendency of the American foreign trade balance sheet toward an excess of imports over exports. In the fiscal year closed last June our imports were only \$176,000,000 less than our exports.

Except for the fiscal year 1923 this is the lowest export balance we have had in more than 30 years.

Our exports still amount to between 9 and 10 per cent of our national production, and have not decreased in this proportion since the depression. The unusual fact of the situation is that the volume of imports now necessary to sustain American industry and supply American economic needs has remained well above the average fall of business activity.

The comparative figures are 29 per cent loss for imports and a 37 per cent loss for our general domestic production from the 5-year average.

Leo Melanowski

Leo Melanowski, who was long connected with the American automobile industry as a designing engineer, died at Cleveland, Ohio, last week, at the age of 73. At the time of his death he was an inmate of the Home of the Little Sisters of the Poor.

Melanowski, while of Polish extraction, was a Frenchman by birth and received his technical education in France. Shortly after leaving college he was employed by Adolphe Clement, a bicycle manufacturer, who later branched out into the automobile field. Clement was one of the "men of action" of the early automobile period in France, and secured control of a number of automobile factories other than his original Clement Works at Mezieres where he built the Bayard Clement car. Later on he took up also the manufacture of aircraft engines.

Melanowski first visited the United States in the late nineties, to buy machine tools here for Clement. He also was sent by Clement to Friedrichshafen, Germany, where Count Zeppelin was then equipping his first rigid dirigible with gasoline engines. Some years later he met Alexander Winton in Paris and was engaged by the latter as designing engineer. Winton at that time had decided to abandon the early type of car with horizontal engine and get out a design with a vertical engine under a hood in front,

in which type the French had had the most experience.

Melanowski stayed with Winton for a couple of years, and he also worked for a short time for Alex Y. Malcolmson, who backed Henry Ford in the Ford Motor Company.

After terminating his connection with Winton and Malcolmson, Melanowski returned to France and established himself as a consulting engineer in Paris. Among his clients he counted such prominent firms in the automobile industry as Clement-Bayard, Panhard-Levassor, and De Dion-Bouton. While in Cleveland, Melanowski had met the White brothers, whose firm, the White Company, was engaged in the manufacture of steam cars. Later on, when the firm decided to enter upon the manufacture of gasoline automobiles, Rollin White went to Paris and engaged Melanowski as designing engineer.

The latter's connection with the White Company ended in a patent suit which cost him considerable money. He was also unlucky in his matrimonial affairs. For his second wife he married a former chorus girl of the Folies Bergere, Paris, from whom he was later divorced, at considerable expense to himself.

The remainder of his fortune was swept away in the failure of the L. M. Axle Company, a Cleveland concern which he organized for the manufacture of a series of truck axles of his own design.

Chevrolet Shifts Field Personnel

Chancellor, Nimnicht, Nonn and Sarvis Have New Posts

H. J. Klingler, vice-president and general sales manager, Chevrolet Motor Co., has announced the following changes in field personnel, as a result of several transfers to the Buick-Olds-Pontiac sales division of General Motors Corp.:

T. E. Chancellor, for several years manager of Chevrolet's Denver zone, goes to the B-O-P organization as manager of their El Paso zone. He is succeeded at Denver by O. T. Miller, formerly Chicago zone manager, whose place is being taken by H. K. Bragle, a veteran of the Chevrolet field organization, and formerly Tarrytown zone manager.

E. A. Nimnicht, formerly Kansas City zone manager, goes to Tarrytown, succeeding Bragle, and is succeeded at Kansas City by F. Normal Phelps, formerly at Davenport. R. A. Watson, for several years Detroit city sales manager and more recently promoted to Wichita zone manager, goes to Davenport, succeeding Phelps.

O. E. Nonn, recently attached to the staff of A. W. L. Gilpin, St. Louis regional manager, goes to Wichita, replacing Watson.

I. X. Sarvis, formerly manager of Chevrolet's El Paso zone, goes to Fargo, replacing M. A. McNiff, who has been transferred as zone manager to Omaha, replacing T. F. Kinman, now with another division of General Motors.

Hudson-Essex Sales Show Steady Gains

DETROIT, Oct. 17—Hudson-Essex shipments for September showed a gain of 1229 units over the same month last year. Each week during the month of September showed a gain over the corresponding week of 1931, the percentages being as follows:

Week ending Sept. 3, gain of 23.2 per cent; Sept. 10, 41.1 per cent; Sept. 17, 16.5 per cent; Sept. 24, 17.6 per cent, and Oct. 1, 27.6 per cent. This is an average gain of 25.2 per cent.

McFate Represents Republic Steel

J. E. McFate, formerly associated with Jones & Laughlin Steel Corp., has been appointed a sales representative of Republic Steel Corp., Youngstown, in the New England territory. Mr. McFate's headquarters will be in Boston.

Baumgartner Resigns

W. J. Baumgartner, chief engineer of Garford and Relay Motors Corp., Lima, Ohio, has resigned. He joined the Relay interests 12 years ago.

Improvement Seen In Copper, Brass

Upturn Expected, Chase Says in Address Before Research Association

NEW YORK, Oct. 20—"There has been a distinct improvement in the copper and brass industry for some weeks and reasonable ground for expectation that this improvement will continue subject to seasonal conditions," said F. S. Chase, president of the Chase Brass & Copper Co., Waterbury, Conn., and vice-president of the Copper & Brass Research Association which held its twelfth annual meeting last week here.

Mr. Chase presided at the meeting which was attended by executives of the principal copper producing companies and brass fabricators which constitute the association's membership.

"While this may be due to some extent to a buying movement to cover on account of the slight advance in the prices of copper and spelter, which are still materially below the average cost of production in this country," Mr. Chase continued, "nevertheless, the character of the orders from the customers indicates that there is a general demand for their products.

"These cover such a wide field that it is apparent buying is based on a general improvement in business, which should call for taking on more men and helping the unemployment situation."

Officers elected were:

R. L. Agassiz, chairman of the board of the Calumet & Hecla Consolidated Copper Co., Boston, president; F. S. Chase, president of the Chase Brass & Copper Co., Waterbury, Conn.; Louis S. Cates, president of Phelps Dodge Corp., New York; H. Donn Keresey, president of the Anaconda Wire & Cable Co., New York, and C. D. Dallas, president of Revere Copper and Brass, Inc., New York, vice-presidents.

C. T. Ulrich, treasurer of the Kennecott Copper Corp., treasurer; H. Foster Bain, managing director, William A. Willis, manager, and Bertram B. Caddle, secretary.

The following were elected members of the board of directors, the first eight comprising the executive committee:

R. L. Agassiz, chairman, Calumet & Hecla Consolidated Copper Co.; Louis S. Cates, president, Phelps Dodge Corp.; H. Donn Keresey, president, Anaconda Wire & Cable Co.; C. T. Ulrich, secretary and treasurer, Kennecott Copper Corp.; Charles Hayden, vice-president, Nevada Consolidated Copper Co. and Utah Copper Co.; John A. Coe, president, American Brass Co.; F. S. Chase, president, Chase Brass & Copper Co.; C. D. Dallas, president, Revere Copper & Brass, Inc.; J. W. Allen, treasurer, Greene Cananea Copper Co. and Inspiration Consolidated Copper Co.; Charles F. Ayer, president, Magma Copper Co.; Francis J. Bassett, vice-president, Revere Copper & Brass, Inc.; Julian B. Beaty, Nichols Copper Co.; H. C. Bellinger, vice-president, Chile Exploration Co.; Erle V. Daveler, treasurer, Utah Copper Co. and Nevada Consolidated Copper Co.; Cleveland E. Dodge, vice-president, Phelps Dodge Corp.; E. O. Goss, president, Scovill Mfg. Co.; Sam A. Lewishohn, vice-president and treasurer, Miami Copper Co.; William Loeb, vice-president, American Smelting & Refining Co.; E. T. Stannard, vice-president, Braden Copper Co.; Robert

E. Tally, United Verde Copper Co.; W. R. Webster, chairman, Bridgeport Brass Co., and B. N. Zimmer, vice-president, American Metal Co., Ltd.

Japanese Navy Will Crack Own Gasoline

NEWARK, N. J., Oct. 18—Gasoline Products Co. has entered into a license agreement with the Imperial Japanese Navy for a 1000 bbl. cracking plant to be installed near Kudamatsu, Japan.

Fabrication and assembly of materials will be started immediately at the Jersey City plant of M. W. Kellogg Co.

Louis H. Perlman

Louis H. Perlman, who played a conspicuous role in the history of the demountable rim, died in Flushing, N. Y., on Oct. 11. In his younger years Perlman was in the advertising business, but in 1905 he took over the agency for the Welch car in New York.

In 1906 he applied for a patent on a demountable rim and on this application U. S. patent No. 1,052,270 was issued to him in February, 1913. This patent was held to broadly cover demountable rims as then manufactured, and Perlman brought suit for infringement against the Standard Welding Co. of Cleveland, then the largest manufacturer of rims in the country. The suit was decided in his favor and the decision was upheld by the Circuit Court of Appeals the following year, the Standard Welding Co. being enjoined from further infringement and condemned to pay a large sum in damages.

Perlman thereupon, with the cooperation of a number of men prominent in the industry, organized the Perlman Rim Corp. with a capital stock of \$10,000,000. Two rim factories were acquired by the new corporation, that of the Jackson Rim Company, Jackson, Mich., and that of the Mott Wheel Works, Utica, N. Y.

One of the men who assisted Perlman in the organization of the corporation was W. C. Durant, and he merged it with United Motors Corp., a group of automotive parts manufacturers organized by him. United Motors Corp. was taken over by General Motors Corp. in 1919.

Having won the suit against the Standard Welding Co., the Perlman Rim Corp. proceeded against other rim manufacturers. One of the suits involved a rim developed by Louis deF. Munger. This patent was declared valid and infringed by the Perlman Rim Corp.

The case was carried through the Court of Appeals and a review of the decisions was asked of the U. S. Supreme Court, which refused it, however. These decisions deprived the Perlman patent of all importance. Some of the testimony introduced in the later litigation reflected rather unfavorably on Perlman, and he ceased all connection with the Perlman Rim Corp. in 1922.

Casings Shipments Show 10% Gain

August Total Reaches 2,654,863; Inventory Up

NEW YORK, Oct. 18—Shipments of pneumatic casings for the month of August amounted to 2,654,863 casings, an increase of 10.4 per cent over July this year, but were 46.5 per cent below August, 1931, according to the Rubber Manufacturers Association, Inc.

Production of pneumatic casings for August was 3,089,201 casings, a decrease of 14.6 per cent under July this year and 20.9 per cent below August, 1931.

Pneumatic casings in the hands of manufacturers Aug. 31 amounted to 6,658,974 units, an increase of 7.4 per cent above July 31 stocks, but were 25.1 per cent below Aug. 31, 1931.

The actual figures are as follows:

PNEUMATIC CASINGS			
	Shipments	Production	Inventory
Aug. '32	2,654,863	3,089,201	6,658,974
July '32	2,404,095	3,616,829	6,202,856
Aug. '31	4,959,984	3,905,925	8,896,296

Dura Co. Reorganizes

TOLEDO, Oct. 22—Reorganization of the business of The Dura Co. under the name of Dura Co., was effected Oct. 15. The corporation has taken over the assets of The Dura Co. and The Dura Building Co., including plant and equipment.

Management of the newly organized company will be F. A. Judson, president; A. F. Seubert, vice-president and general manager; R. C. McCullough, vice-president and general sales manager, and A. B. Richardson, secretary and treasurer.

The company will continue to manufacture the line of automobile regulators and hardware for the automotive and refrigerator industries.

Dura Co. will maintain a comprehensive design and art service which will be staffed by some of the outstanding industrial designers. The production personnel and organization of the previous company will continue.

Boosters to Meet In Detroit, Dec. 4

DETROIT, Oct. 20—The annual banquet of the International Booster Clubs, sponsored by Detroit Booster Club No. 19, will be held in the Grand ballroom of the Book-Cadillac Hotel, Detroit, Mich., on Sunday night, Dec. 4, 1932, in conjunction with the Joint Trade Show of the N. S. P. A. & M. E. W. A.

Grace & Holliday Will Advertise DeVaux Cars

DETROIT, Oct. 17—Grace & Holliday, Detroit advertising counsel, who have represented Continental Motors Corp. for the past seven years, have been appointed to handle the advertising for Continental-DeVaux Co.

Kettering Thinks We Plan Too Far Ahead; Would Limit Bond Issues to Twenty Years

PARIS (*Special*)—Charles F. Kettering, vice-president of General Motors Corp., told the American Club of Paris that "Americans have an idea that today's generation is the only generation which will have enough brains to plan for the future."

"They try to plan for the next fifty years," he declared. "It should be a crime for anyone to sell bonds for more than twenty years' duration. Nobody knows what will happen in twenty years' time."

Mr. Kettering had prefaced these remarks by declaring that "in every age and in every country we have arrived at the point where old processes must be reconciled to the new thing."

The speaker asserted that "we must get away from the idea that we can sell to all the world with sufficient ballyhoo."

"Americans have learned that mar-

kets are not indefinitely elastic and there is such a thing as saturation," he said. "I object to the standardization of ideas because Father Time comes along every year with his great gifts and new conceptions and we must not measure new ideas by old notions."

"There is a great controversy between the railroads and the automobile," Mr. Kettering also declared. "Politicians in the United States have become tax conscious."

"The railroads say they could offer lower freight rates if it were not for the expense of their right-of-way. The tax on gasoline has built roads all over America. We have paid for our right-of-way, too."

"We have filling stations on every corner where we formerly had saloons. I do not know what the oil refining companies will do after the coming elections."

U. S. Industrial Alcohol Uses Novel "Ad-Drum"

NEW YORK, Oct. 20—An innovation in the distribution of advertising material has been introduced by the U. S. Industrial Alcohol Co. The innovation is merely a false head in the drum used in shipping Pyro, the anti-freeze made by that company. When shipping Pyro to the dealer, advertising material is enclosed in the double head of the drum. The inside surface of the detachable head is in reality an attractive lithographed metal sign 24 inches in diameter for outdoor use. When the special head is removed the drum is exactly the same as the regular container.

The company is conducting an advertising campaign known as the "Straight Twelve." The 12 points, all of which are of interest to the dealer, are:

1. New Colorful Non-Returnable Drums.
2. New Three Opening Drums.
3. Double Head Advertising Drums.
4. New and Improved Pyro Formula.
5. Five-Gallon Portable Pyro Drum.
6. Musical Radio Program for 13 Weeks.
7. New Streamers and Charts.
8. 60-Second Radiator Siphon.
9. New Outdoor 1932 Service Sign.
10. Cut Service for Dealer Ads.
11. Advertising Packed in Envelopes.
12. A Complete Line of Containers.

Crude Rubber Consumption Up

NEW YORK, Oct. 18—Consumption of crude rubber by manufacturers in the

United States for September amounted to 22,491 long tons. This compares with 22,372 long tons for August, 1932, and represents an increase of .5 per cent, according to the Rubber Mfrs. Association.

Imports of crude rubber for August were 29,509 long tons, a decrease of 13.8 per cent below August, 1932, and 27.1 per cent below September a year ago.

Estimated total domestic stocks of crude rubber on hand Sept. 30 was 365,789 long tons, which compares with Aug. 31 stocks of 357,342.

September stocks show an increase of 2.4 per cent, as compared with August of this year, and were 43.8 per cent above the stocks of Sept. 30, 1931.

It was reported that there were 46,188 long tons of crude rubber afloat for U. S. ports on Sept. 30. This compares with 42,846 long tons afloat on Aug. 31, 1932, and 46,815 long tons afloat on Sept. 30, 1931.

Burgess is Crocker-Wheeler Director

Dr. Charles F. Burgess has been elected a director of Crocker-Wheeler Electric Mfg. Co. to fill the vacancy caused by the death of Edward W. Brown.

Gamble Sails for England

D. E. Gamble, general manager of the Borg & Beck Co., division of Borg-Warner Corp., sailed to visit the English affiliated company, Borg & Beck, Ltd., at Leamington Spa, near London, and to attend the London Olympic Automobile Exhibition.

Chrysler Fair Building Begun

Ground Broken for
"Century of Progress"
\$150,000 Structure

CHICAGO, Oct. 18—Ground has been broken for the \$150,000 structure being erected by the Chrysler Sales Corp. at the Century of Progress, Chicago's 1933 World's Fair.* The structure will rise at Thirty-first Street just north of the Travel and Transport Building, which will house an abundance of automotive exhibits.

The building will have two stories and the walls in its main exhibition area will be 125 ft., 6 in. high. An observation deck will be located on the second floor, from which visitors may view the exposition grounds and watch cars being tested on a half-mile outdoor track. A long narrow court, in the center of which will be a pool flanked by gravel walks and umbrella trees, will lead from the Thirty-first Street entrance to the Walter P. Chrysler Hall, the main exhibition area. A building material, which will reflect the sun's rays in the daytime and lend itself to the fair illumination scheme at night, will be used.

* See page 538, Oct. 10, 1931, *Automotive Industries*.

Rubber Exchange Reports 258,202-Ton Turnover

NEW YORK, Oct. 18—The volume of trading on the Rubber Exchange of New York, Inc., during the year ended on Aug. 31 amounted to 258,202½ long tons, John L. Julian, president, said in his annual report.

Prices fluctuated between a high point of 5.97 cents a pound, reached on Sept. 11, 1931, and a low mark of 2.53 cents on June 28 last. Thirteen applicants were elected to membership in the Exchange in the year.

Mr. Julian reported that consumption of rubber in the United States had continued to decline during the last twelve months, whereas foreign consumption in the period had exceeded previous levels.

"Estate production and shipments in British Malaya and the Dutch East Indies show few signs of reaction since the abandonment of the restriction proposals," Mr. Julian stated. He estimated exports from these two areas for this year as approximately the same as during 1931.

Young Radiator Expands its Line

RACINE, WIS., Oct. 20—Young Radiator Co., manufacturer of engine-cooling radiators and unit heaters, has diversified its line by the addition of heating equipment for restaurants, halls and assembly rooms.

A new type of electric heater and new type blast coils also will be offered.

U. S. Has Surplus of Rubber Stocks

World's Total at End of 1932 Likely to Exceed That at Close of 1931

NEW YORK (Special) — Increasing public participation in commodity markets has been keenly reflected in the crude rubber market. Although the United States produces no rubber, it consumes more than half the entire world output, and American investors, with that fact in view, have begun to examine the statistical side of rubber with renewed interest, according to Philip K. Crowe, *New York Evening Post*.

Reflecting this interest are transactions on the New York Rubber Exchange in August which amounted to \$1,930 tons, the heaviest monthly turnover since March, 1929.

According to Clifford C. Johnston, an authority on the commodity, the world's supply of rubber is affected by these factors: (1) Native rubber gardens supplanting European managed estates; (2) enlarged yields from bud-grafted trees; (3) synthetic rubber, and (4) rubber from plants other than the Hevea Brasiliensis, which produces 85 per cent of the world total.

In explaining his points, Mr. Johnston first takes up the important question of native rubber gardens, saying:

"Investigators handicapped by lack of adequate transportation in certain districts of Sumatra and Borneo estimated in 1928-29 that the native rubber harvested in 1931-32 would be tremendous.

"However, due either to low prices or inaccurate estimates, or because of both reasons, native rubber exported from the entire Dutch East Indies during 1931 was less than that in 1929 and during the first half of this year was 20 per cent less than during the same period of 1931.

"In British Malaya native gardens have harvested so far this year 15 per cent less rubber than in 1931. This is significant because Malayan natives are more dependent upon rubber planting and cannot turn so easily to rice culture as natives in the Dutch East Indies.

"There need be no fear, therefore, that native rubber gardens will supplant the estates—more particularly is this true because of the progress being made by the estates in bud-grafting experiments.

"The cultivation of bud-grafted rubber calls for scientific knowledge and culture, whereas much of the native rubber is planted supplementing the culture of rice, tapioca, pineapple, coffee and pepper; particularly in the Dutch East Indies.

"It will, however, be ten years or more before bud-grafted rubber will predominate, inasmuch as less than 10 per cent of the present areas are given up to it and in many districts it is still regarded as an experiment.

"In the present decade, therefore, it cannot be anticipated that the rubber tree will produce generally at the thousand-pounds-to-the-acre and over yield claimed and attested for successfully bud-grafted trees.

"Synthetic rubber has the handicap of high production costs and does not duplicate all of the useful physical properties of natural rubber.

"The statistical situation in rubber is overshadowed by stocks of over 600,000 tons, part of which has been undeclared. Of this amount over 400,000 tons is in the United States or on its way here.

"During the first half of the year world's shipments exceeded consumption by over 15,000 tons. Shipments totaled 300,000 tons and consumption 345,000 tons. During the last half of the year United States is not expected to consume over 150,000 tons and the rest of the world not over 175,000 tons. The total consumption for the year is therefore not likely to exceed 670,000 tons. The net exports from producing countries are given below for the first six months and conservative estimates for the last six months:

Country	Tonnage First 6 Mos.	Est. Ton. Second 6 Mos.
Malaya	199,000	180,000
Dutch East Indies	113,000	90,000
Ceylon	24,000	20,000
British India	3,000	3,000
Sarawak	3,000	3,000
British Borneo	3,000	3,000
Siam	2,000	2,000
French Indo China	7,000	7,000
S. America, Africa, etc.	6,000	6,000
	360,000	314,000

"However, if rubber prices are maintained above four cents a pound, it is quite likely that the shipments in the second half will considerably exceed the above figures. In any event, world shipments will total over 670,000 tons.

"World's surplus, therefore, at the end of 1932 is likely to exceed that at the end of last year."

DeSoto Shipments Up 27%, Report

DETROIT, Oct. 18—DeSoto Motor Corp. shipped 1336 DeSoto cars in September, an increase of 27 per cent over August and a gain of 13 per cent over September of last year, according to Byron C. Foy, president.

This year's September shipments of 1336 cars compare with 1053 for August and 1183 for September of last year.

Finance Men Plan New Orleans Meet

CHICAGO, Oct. 18—Consumer credit as embodied in the two-billion-dollar business of the discount finance companies will be discussed by more than 200 financiers in New Orleans, La., December 6-8, at the annual convention of the National Association of Finance Companies. Firms doing 90 per cent of the automobile and other time-payment financing of merchandise in this country are members.

Fageol Optimistic; Plan Bus-Rail Car

Patents Granted on Highway-Rail Unit, W. B. Fageol says

KENT, OHIO, Oct. 18—W. B. Fageol, vice-president of the Twin Coach Co., bus manufacturers, announced that within the next 60 days he expects the plant will be back on a full-time basis. It is now working about 20 per cent.

Marked improvement in business conditions has given officials an optimistic outlook on the business conditions. Fageol reported that business on the Pacific Coast, where the Kent factory has several branches, is gradually improving.

Officials this week received word that a patent request for a combination highway-rail bus had been granted, and marketing is expected to start soon.

Although Interstate Commerce Commission regulations now prevent its use, Twin Coach officials hope the demand will compel the commission to alter the law governing the one-man crew coach.

Black & Decker Order Steel

KENT, OHIO, Oct. 18—Black & Decker factory here purchased its first car of steel in many months. Business during the past month was reported improved.

Approximately 100 are employed at the plant.

Perfect Circle Reports Canadian Sales Gain

CHICAGO, Oct. 18—More Perfect Circle piston rings were sold in Canada in August than in any other August in Perfect Circle history, officials of the Hagerstown, Ind., plant announce. Sales gained 10 per cent over Aug. 31.

Dole Valve Co. Doubles Payroll

CHICAGO, Oct. 18—The Dole Valve Co. reports 100 per cent increase in the size of the company payroll this week.

Company officials announced: "The increased amount of business is not due to any one contract, but is just a general improvement of the small orders received from a large number of customers."

Seeks Czech Tire Plant

PARIS (Special)—The Michelin tire firm of Clermont-Ferrand has applied for permission to establish a plant for the manufacture of pneumatic tires in Czechoslovakia.

It is proposed to organize a stock company with a capital stock of 10 million crowns, divided into 10,000 shares of a thousand crowns each.

New Kinner Monoplane Given U. S. Approval

Two-Place, Open, Low-Wing Craft Lists at \$2,490 Fully Equipped

WASHINGTON, Oct. 20—The Department of Commerce, Bureau of Aeronautics, recently issued Approved Type Certificate No. 490 covering the new Kinner two-place, open-cockpit, low-wing monoplane manufactured by the Kinner Airplane & Motor Corp., Glendale, Calif.

The price of this new ship has been set at \$2,490, flyaway Glendale, fully equipped. The ship will be serviced through 40 service stations distributed throughout the country. The monoplane is powered with the standard Kinner 100-hp. engine.

Among its features of design may be mentioned the following: Side-by-side seating, which makes it possible to converse while in flight; dual controls which render the ship suitable for instruction purposes; de luxe instrument panel; airwheels all around, including tail wheel; two independent brake systems, one hand and one foot-operated; adjustable seat, and Heywood self-starter.

The ship is finished in bright yellow with green trim, the cockpit being upholstered in green fabrikoid to match the color scheme. The cruising radius is said to be 400 miles and the fuel consumption at cruising speed, 1 gal. for every 15 miles.

F.W.D. Declares Dividend

CLINTONVILLE, WIS., Oct. 20—Directors of the Four Wheel Drive Auto Co. here have declared the regular semi-annual cash dividend of 3 per cent, following a similar disbursement last April.

The company has been able to keep its plant in operation with but a comparatively small loss. As the closing months of the year normally are the busiest, it is still hoped to wipe out the deficit and perhaps show a small profit by Dec. 31.

The company has outstanding 17,000 shares and the dividend distribution amounts to \$51,000. There are between 600 and 700 stockholders, most of them holding but a few shares and located in Clintonville and nearby towns and the farming community.

Institute of Metals Now is 25 Years Old

LONDON (Special)—The coming year promises to be a notable one in the history of the Institute of Metals (Great Britain), in that it marks the twenty-fifth anniversary of its foundation. The twenty-fifth annual general meeting will be held on March 8-9 in London, while the silver jubilee autumn meeting—which will constitute the real anniversary gathering—will be

held in September in a provincial center.

The remaining general meeting of the institute will be held on the occasion of the twenty-third annual May lecture, to be given in London on May 10.

Peed Addresses Advertising Men

SPRINGFIELD, MASS., Oct. 18—L. G. Peed, general sales manager of the DeSoto Motor Corp., addressed the New England advertising men here yesterday. It was the opening of the thirteenth annual convention of the First District of the Advertising Federation of America.

Working with Byron Foy, president of DeSoto, Mr. Peed this year sponsored one of the most unusual automobile advertising campaigns ever conceived. He based his decision to adopt this new type of advertising appeal on the fact that the public will buy if the product and price are right and if the product is given a proper presentation to the buying public.

In the course of his long experience as a sales executive, Mr. Peed has been making a study of advertising as one of the most effective arms of selling and has okayed national campaigns amounting to more than fifty million dollars.

Kinstler Resigns

Leon L. "Cap" Kinstler, sales manager of the brake drum division of Budd Wheel Co., has resigned. He was sales manager of the brake drum division, Holley Permanent Mold-Machine, Inc., and previously was with the Michigan Steel Co. and Erie Malleable Iron Co.

Foreign Sales Lead Gain in Aero Trade

Curtiss-Wright Won Big Turkish Order, Reports Record Export Business

NEW YORK, Oct. 18—An encouraging upturn in the aviation business, including large orders for planes in the export and domestic fields and increased sales in school and supply services, is reported by the Curtiss-Wright Corp.

John S. Allard, vice-president, said the export business was better than ever before. Seventeen carloads of airplanes were shipped to Turkey and to South America in the last few days, and other orders in the export field had brought about the employment of 90 additional men in the company's plant in St. Louis and of 125 additional men in Buffalo.

An order of \$500,000 for eleven new transport planes, which the company is building in St. Louis, had been placed by American transport operators. These planes, which will be of the sesqui-plane type, will carry 15 passengers and a mail load and will have twin Cyclone engines of 700 hp. each, streamlined into the lower wing.

The engines will drive geared propellers which will turn at about 700 revolutions a minute, or much more slowly than with direct drive.

The shipment of military planes to Turkey, officials of the company said, the order for which was obtained in competition with British, French and German firms, although the American equipment was the highest in price, had been followed by the shipment of two Curtiss Kingbirds, twin-engined transport planes, to start the first airline in Turkey.

+ + CALENDAR OF COMING EVENTS + +

FOREIGN SHOWS

Glasgow, Scottish Motor Show...Nov. 11-19
Paris, Aeronautical Show...Nov. 18-Dec. 4

CONVENTIONS

Natl. Tire Dealers Assoc., Atlanta, Ga.Nov. 14-16
Natl. Battery Mfg. Assoc. Meeting—ClevelandNov. 17-19
International Booster Clubs, DetroitDec. 4
American Society Mechanical Engineers, New York City (Annual Meeting)Dec. 5-9
Natl. Exposition of Power & Mechanical Engineering, New YorkDec. 5-10
Nat'l Automotive Parts Assoc.Dec. 12-14
Rubber Mfr.'s Assoc., New York City, Annual MeetingJan. 9
Annual SAE Dinner—New York Jan. 12, 1933
Highway & Building Congress, DetroitJan. 16-20
American Road Builders' Annual, DetroitJan. 16-20

Steel Founders Society, Detroit, Annual MeetingJan. 16-20
Steel Founders Soc. of America—Annual Meeting—Detroit...Jan. 16-21
Annual SAE Meeting—Detroit Jan. 23-26, 1933
American Soc. for Testing Materials (Annual Meeting)...June 26-30

SHOWS

Joint M.E.A. & N.S.P.A. Trade Show, DetroitDec. 5-10
National Automobile Show, New YorkJan. 7-14, 1933
Pacific Automobile Show, San FranciscoJan. 7-14
Detroit, Mich., Automobile Show Jan. 21-28
Boston, Mass., Automobile Show Jan. 21-28
Washington, D. C., Automobile ShowJan. 28-Feb. 5
National Automobile Show, ChicagoJan. 28-Feb. 4, 1933
Springfield, Mass., Automobile ShowJan. 30-Feb. 4
Springfield, Ill., Automobile Show Feb. 9-11
Kansas City AutomobileFeb. 11-18

Distributor Maps Recut to Fit

(Continued from page 516)

definite bearing. Bigger territories require bigger capital investment on the part of distributors, to be sure, but some factories think it is easier to get one well-financed distributor to cover a little wider territory than it is to get three or four adequately financed ones to handle the same area split into smaller units. It has been pointed out also that supervisory costs mount directly in proportion to the number of direct accounts which the factory has; and everybody is eager to cut those costs, particularly when volume remains far below peak levels.

Another potent factor is the growing insistence on factual assurance of a chance to make some money which is rising from anybody who has any money when he is approached to take on distribution of any given line. Even those experienced operators who fully realize that too much territory is a curse rather than a blessing frequently feel that the tide has gone too far in one direction during the last ten years.

And behind all of these more or less practical considerations there lies the fundamental decision which many believe the industry will eventually have to make:

Constant increase in number of direct factory contracts means constant increase in supervisory expense and constant increase in factory participation in retail methods and operations. Does this road lead eventually to factory control and operation of retail outlets? Will continuance of that trend mean that eventually the factories will be in the retail business?

Plenty of analysts can be found who answer this question with a definite "Yes."

Yet every factory executive in the business heatedly—and we believe sincerely—declares that his factory never wants to be in the retail business and never will be in it. Many of the steps which factories have had to take in control of dealer operations, however, even though designed for the specific purpose of keeping the factory out of the retail business, have been and are the result of forces which tend to force it in that direction. One thing leads to another in automobile merchandising as in every other phase of life, and factories sometimes find themselves at a point in a distribution scheme that never was laid out on any

map as an objective.

It is this line of reasoning, perhaps, which has led some executives to give more thought again to a type of distribution in which the distributor and the dealer are permitted—and required—to take responsibility for fuller control of their own operations. This group definitely is in a minority and does not include some of the most outstanding figures in the business. But it begins to look with foreboding at the future implications of a policy which demands more and more control of every detail of distributor operation as years go on. Even a slightly smaller immediate volume might be preferable, some of this group has begun to think.

The "good old days" of the "good old-fashioned distributor" never will come again. Everybody's agreed on that point. Never again will there be an easy profit period for distributors, regardless of the size of their territories. The old timer who hopes for a return of those happy days when he could sit back and dispense automobiles to clamoring dealers and collect 5 per cent for so doing is dreaming a vain dream. Hard work, sound methods and constant vigilance will be necessary to wholesale and retail profit in the automobile field from now on no matter what sort of factory policies are adopted.

But we heard just enough faint murmurings on the subject of distributors and distributor territories during a recent trip West to make pertinent this renewed discussion of an industry-old problem. Some slight turn backward may take place from the constant trend of the last ten years toward smaller distributor territories and increased factory supervision of wholesale and retail outlets.

No major trend in this respect is to be expected. Such a swing, if it comes at all, will be so slow and so detailed as to be hardly noticeable in an overall sense. But it is worth recording the fact that for the first time since we can remember there is some tendency in a few places to think along these lines. Such changes as do come about—and such as have come about in the last year or so—are specific as to individual cases both in regard to territories, distributors and factories.

Bendix-Westinghouse Develops

(Continued from page 533)

takes up its task where human alertness and dependability leave off. The device consists of a sturdily constructed and compact unit which may be readily installed at the factory or on air-braked vehicles already in service with a minimum of labor.

A NEW Stop-Light Switch for use in conjunction with the air brake system of the Bendix-Westinghouse organization is rugged in construction, exceptionally sensitive to even the slightest air pressures and is set for positive operation at the instant of brake application. Slightly larger than a pocket watch, this air Stop-Light Switch features easy installation on air-braked vehicles, either at the factory or in the field. No service is required to assure its perfect operation and long service life.

PASSENGER-TO-DRIVER signaling systems for the motor coach is the Air Buzzer, another new product of this company. Small enough to fit the palm of the hand, this unique device is designed especially to relieve overloaded electrical systems. Combining a pleasing tone with easy, positive operation, this new signaling device requires an insignificant amount of air pressure to insure its normal function. The air buzzer adapts itself to the conventional cord or chain system of passenger control and is easily adapted to any coach having an available pneumatic source, such as the air brake system affords. Installation may be quickly accomplished either at the factory, as standard equipment, or in the field as a replacement unit.

Factory Problems and Public Taste Demand Gradual Changes in Design—Says H. M. Crane

(Continued from page 529)

past chairman of the section and a member of the S. A. E. Council, served as meeting chairman, and introduced John A. C. Warner, secretary-general manager, who outlined some the important national S. A. E. activities during recent months.

Delving at once to fundamental engineering, Mr. Crane pointed out that design alone is futile. He stressed the necessity for coordination of vehicle engineering, parts designing and production methods throughout his talk. Radicalism, *per se*, in any division of motor vehicle engineering, is doomed to failure, he believes, citing his long personal experience.

The public, he is convinced, is inherently conservative, asking for rather gradual changes in overall design, engine power and other developments. But more important, the foundry, machine shop, accessory manufacturer and the fuel and lubricant supplier must fit their products into the new design—a process which takes time.

Then, too, high-speed roads, costly highway programs and bridges, tunnels and viaducts must be built before the high-speed vehicles of the future will be economically successful.

Mr. Crane cited improved foundry methods of today, without which the eight-cylinder engine would be available on high-priced cars only, and the twelves and sixteens would be almost unknown today.

The intrinsic value of motor cars of today cannot

be compared with those of a few years back. This is not due to any one phase of advanced engineering, but is a fact only because production methods, improved design of each of the other component parts and the advanced automotive consciousness of the public have kept pace with, for instance, increased horsepower.

Indicating the progress made in automobile design, he briefly described the first car he owned—a 1904 Pierce-Arrow—costing \$4,000, weighing 2700 lb. No doors or top and of rear entrance design, it claimed a top speed of about 50 m.p.h. It required excessive overhauling; bearings needed adjustment every 4000 to 5000 miles, its tire life only a fraction of those of today, and although an outstanding value for the time, had very poor roadability. "It could not compare with today's Ford, which is selling for about one-eighth the price," he said.

"Much has been done, but we are on the threshold of far greater developments in automotive engineering," he said. "The all-round serviceability of an automobile of today's design is astounding. The cheapest cars on the market must take long runs on straight highways at sustained speeds of 60 m.p.h. and more, must have excellent acceleration characteristics, must be able to negotiate mountain roads at high speeds, yet must give the maximum of comfort over dirt roads of the West, Southwest and Canada."

Crude Lanoline as a Rust Protective

AMONG recent investigations undertaken at the National Physical Laboratory at Teddington, England, has been an experiment with crude lanoline, a waste product of the woolen industry, which has been shown to be a most satisfactory coating for the preservation of bright steel surfaces. It is said to be more efficient and somewhat less expensive than petroleum grease.

Test pieces of steel were coated with crude lanoline and turned once a month in a dry but unheated room. None of them showed any rusting. Test pieces stored in the corrosive atmosphere of a store-shed for ammonium nitrate withstood corrosion for three years. Under the same conditions pieces cleaned and dried or protected by a thin film of mineral oil were completely rusted in from one to six months.

Olympic Models Priced at \$1,000 to \$1,500

(Continued from page 519)

ered. The parking brake lever is mounted in the center. Front fenders are designed to minimize the air resistance, while the rear fenders are of the full-crowned type. Running-board shields are inswept to conform to the body shape. Running boards are of steel construction and have a covering of heavy corrugated rubber which is bound with chrome-plated moldings. The rear apron completely covers the gasoline tank.

The engine-compartment front is of the V-type,

while the side panels of the hood have four adjustable ports each. A grille with fixed vertical bars is provided.

Upholstery is in heavy whipcord, with plain headlining. Cushions have the conventional coil springs and heavy padding on a burlap base. The cloth is applied in straight pleats with single tufting. The rear compartment has a fabric-bound carpet, the front compartment a rubber mat. Garnish moldings and cowl board have a mahogany finish.